

SD Times

SOFTWARE DEVELOPMENT

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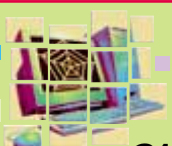
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EBUSINESS EXPO SHOWS DEVELOPER INFLUENCE

New interfaces, tools for Web applications move to forefront as dot-coms diminish

BY DOUGLAS FINLAY

NEW YORK — With the fall of dot-com enterprises over the past nine months, CMP Media Inc.'s eBusiness Conference and Expo, held last month at the Jacob K. Javits Convention Center, featured a bevy of new software upgrades only developers would love. Traditional developer products such as screen enhancements, new interfaces and communication links, developed to enhance and increase information exchange among e-business programs, were evident throughout the show.

Paul O'Reilly, eBusiness Ex-

po's general manager, said that even as the show attempts to reach nontraditional IT managers, "there is product at the show for developers, and they continue to be an audience we will target as we go forward."



Serena Software Inc.

(www.serena.com) debuted its ChangeXpress Web-based software configuration management interface, designed for managers on the road who need a quick access point to approve changes to development projects. Chuck Henderson, Serena's director of SCM product marketing, said ChangeXpress

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A .NET Gain For Sheridan, ProtoView

Internet frameworks prompt merger

BY DAVID RUBINSTEIN

Two component vendors with a shared vision of the future last week announced a merger that will result in a new company to provide components for building foundations for Web application development.

Sheridan Software Systems Inc. and ProtoView Development Corp. will form a new company, Infragistics Inc., which will be located at ProtoView's headquarters in Cranbury, N.J. Sheridan's offices in Melville, N.Y., will become the company's development lab. The value of the new company is said to be between \$20 million and \$25 million.

"When we discussed merging, we saw our product lines have few overlaps," said Dean Guida, who will serve as CEO and president of Infragistics after guiding ProtoView. "Also, [Microsoft's] .NET was a catalyst. We realized we would both need to retool our product

lines, and there would have been duplicative research and development and marketing."

Sheridan provides components and tools for Microsoft's Visual Studio development environment, while ProtoView offers ActiveX and Java components and tools.

"Over the past year, our clients have expressed interest in wanting to choose a partner, not just a vendor to buy things from," said Sheridan president Bob Wolf, who will serve as director of sales and marketing for Infragistics. "This merger creates the only component vendor out there able to deliver across the broad spectrum of platforms developers need. We are now better suited to provide support, corporate programs and enterprise programs."

Infragistics already has a new product, UltraSuite, ready for market. UltraSuite is a Visual Studio development toolkit

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ANT Nibbles on Memory With Portable Browser

C-based environment key to Fresco hardware independence, small footprint

BY EDWARD J. CORREIA

For device designers, there's an ANT they might want to invite to their picnic.

Embedded communications software company ANT Ltd. has developed a new version of Fresco, a small-footprint browser engine suitable for building Internet appliances and portable computing devices regardless of the embedded operating system and hardware platform.

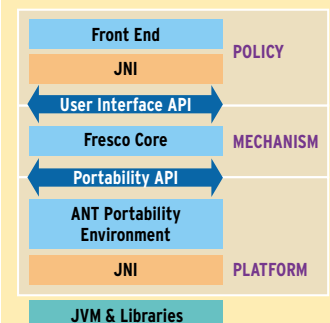
The Fresco browser is made up of a three-layer architecture written in a combination of ANSI C and Java bytecode con-

forming to the Java Native Interface (JNI) specification.

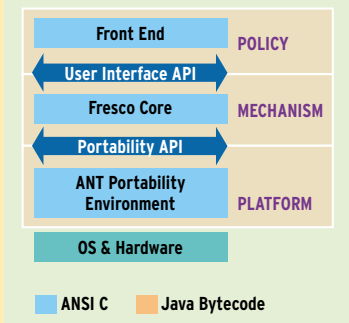
Closest to the hardware is the ANT Portability Environment (APE). Analogous to a Java Virtual Machine, APE handles hardware interface calls, and essentially abstracts the hardware from the layers above. According to the company, when a platform-specific service such as an event, socket or timer is invoked by the browser, a call is made through APE, which maps to the appropriate Java implementation through the JNI. In this way, the company said, Java applications running on the device can use Fresco as a native Java class to display HTML content.

According to John Cherry, ANT's (www.antlimited.com) vice president of sales and marketing, this was accomplished by removing all the commonal-

ANT Fresco Architecture for Java Environments



ANT Fresco Architecture for Native Environments



C-based runtime environment abstracts any hardware platform.

ity found inside the browser, and as a result, APE greatly reduces the complexities of porting. "Instead of having to knit about 700,000 lines of browser code into your platform, our libraries leave about 3,000 lines of code that are specific to the platform," to address hardware-specific func-

tions, he said. And because the crucial components are developed in ANSI C, "any platform where there's a C compiler at the end of the tool chain is ready for Fresco," he said.

Above APE is the Fresco core, an HTML 3.2-compliant browser engine with support

► continued on page 18

DEVELOPER IQ TEST NO. 3

DEVELOPER NO. 1

QUESTION:

Which of these developers used Rogue Wave's DBTools.h++™ to develop a multi-database application?

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DEVELOPER NO. 2



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TogetherSoft Takes Control

BY ALAN ZEICHICK

Peter Coad has two suggestions for improving software development productivity: First, find adaptive ways to automate business processes. And second, help your engineers, designers, architects, analysts and programmers get into the groove—and stay there.

Coad, president of TogetherSoft Inc., is well known as the founder of Object International Inc., an influential consulting firm in the late 1980s, and as one of the leading advocates of software modeling. He says his company's flagship Together Control Center, an integrated development and modeling environment for Java, is based on those two principles—and the latest version, Control Center 4.2, reflects his belief in file-based simultaneous round-trip engineering, and the seamless integration of the development process not around separate tools like editors, compilers, modelers and debuggers, but into a single task-oriented interface.

"Our hundred-year view," said Coad, "is improving the ways people work together. For the five- to 10-year view, it's adaptive business processing automation. It's more than

tools. It's more than IDEs. It's more than automatic document generation." He believes that most current tools and techniques impose their process on the developers, and that's not what he wants. Development managers and programmers alike must be able to bend their tools to their own preference, design patterns and corporate standards. "I'm not into 'process,'" insisted Coad, "but if it's adaptive, I can support that kind of technology."

Coad described TogetherSoft (www.togethersoft.com) as a company that's been in stealth mode, but "soon we'll be visible," he said. The company is raising additional funding, has hired a public-relations agency and has even contracted to revamp its Web site. "We're being quiet now, but we'll have more to talk about in a few months," he said, refusing to discuss new products or significant updates to Control Center.

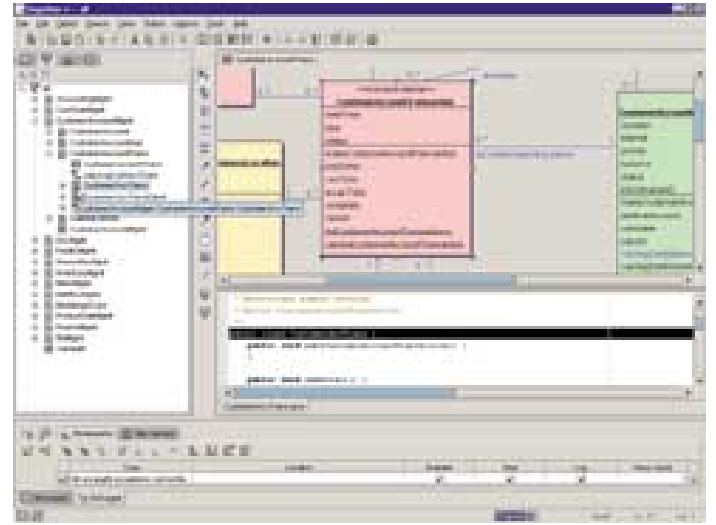
CONTROL CENTER

TogetherSoft's Jonathan Kern, product manager for Control Center, describes the tool as a completely customizable environment in which developers can collaborate on projects from

design to deployment. "We want to make it the programmer's programmer's IDE," said Kern. "It's one editor. Developers can design, use patterns, build, compile, debug in one environment."

Everything in Control Center is file-based. "We're not a repository," explained Kern, and that's where the simultaneous round-trip engineering comes in. Everything is stored in the Java source code; UML diagrams are never stored, but are dynamically generated views of the source code and class libraries that are visible when developers choose a modeling view. A change in a UML diagram causes changes in the appropriate code, he said, while changing the code causes new UML diagrams to be dynamically regenerated.

That's important, interjected Coad, because having a single customizable tool with a single user interface is better than having separate modelers, compilers, repositories and change management, testing and deployment tools. Developers are only productive if they're in "the groove," he said, adding that "it can take a developer 15 minutes to get into the groove," and each time they have to change tools, or even use different tools in a suite, the context shift means that they are



TogetherSoft's Together Control Center provides a single user interface for application modeling, coding, debugging, testing and deployment.

knocked out of the groove and have to get back into it again. By eliminating that context-shift time, said Coad, developers become more productive.

According to Kern, Control Center is updated quarterly. New features of the just-shipped version 4.2 include an improved ability to generate sequence diagrams for existing source code. "Earlier versions diagrammed all the code, including the internals of class libraries," said Kern. "The new release filters the data" to show only what developers need to see.

In addition, the new release includes a new deployment architecture to make it easier to support the different features and designs of the various application servers on the mar-

ket. Version 4.2 can also take code developed for one J2EE-compliant app server, and convert it to work on others. "It can fix the EJB 1.0 code for [IBM's] WebSphere and make it 1.1 compliant," said Kern.

Finally, Kern cited the problem that developers building Enterprise JavaBeans often complete their work before other developers can create the interfaces to test the beans. "Control Center includes a tool to automatically generate a JSP [Java Server Pages] client to test those EJBs," said Kern.

What's next for TogetherSoft and Control Center? Coad and Kern won't say, but they hint that when their new funding closes, the company will be "stealthy" no more. ■

A Field Guide to XML

BY LARRY O'BRIEN

The first half of the Internet revolution was about humans communicating with humans using HTML as the interchange format. For the most part, the computer was to be the medium that handled the addressing, transmission and display of the data. This established use of

the World Wide Web will be enhanced by new display, description and linking protocols specified in the Extensible Markup Language (XML). Even more important, the second half of the revolution will be brought about by the prevalence of machine-to-machine services using XML as the interchange format. Finally, the widespread availability of XML parsers and knowledge has made XML the serialization protocol of choice for programs that do not require

full-blown database storage.

These areas encompass so much of the territory of software development that categorizing an announcement as relating to "XML" is virtually worthless.

However, a particular XML specification "on the ground" generally involves a thicket of technical details to be negotiated by the software developer. This article, neither a tutorial nor a comprehensive overview, attempts to give you the knowledge to ask and answer sensible questions about how XML technologies relate: Does SOAP relate to RDF? Should you know what SAX2 offers before buying an XSLT tool?

INCREDIBLY BASIC MARKUP LANGUAGE

XML 1.0 is the product of the XML Working Group, which

was formed under the auspices of the World Wide Web Consortium (W3C). In October 2000, XML 1.0 became a W3C "Recommendation," which is the final milestone in the W3C Technical Report track. In other words, XML 1.0 is fully baked.

An XML document consists of a bunch of elements, which use the familiar HTML-style tagging format:

```
<greeting>Hello, world</greeting>
<punctuation type="exclamation"/>
```

Such a document, like practically all XML, is well formed in that it adheres to basic formatting rules such as nested matched tags and the trailing slash for stand-alone tags. Even such seemingly minor constraints as this distinguish XML from HTML; for instance, the tag in HTML is a stand-alone tag, but it does not have a trailing slash. Even more important, a huge percentage



(maybe even the vast majority) of Web pages do not have perfectly nested and matched tags. The Web as we know it has been built to accommodate browsers, and browsers are understandably built to display as many pages as they can, guessing when necessary. This is the first challenge to creating distributed Web services in an HTML-based World Wide Web—it's hard to parse.

But when exchanging data, a well-formed document is usually just the most basic level. There is almost always a desire to ensure that documents contain particular types of data, some of which are required, some of which are optional and

so forth. In XML, this is done with the Document Type Definition (DTD). The DTD specifies that a document contains "greeting" tags, HTML tags, data-interchange tags or speech-recognition tags.

When an XML document conforms to the specification in a DTD, the XML document is not just well formed, it is said to be valid. If the Web were made of valid XML documents, not only would it be much easier to parse, there would also be a standard set of tags for all the browsers in the world to interoperate with. This is exactly the goal of XHTML 1.0, another W3C Recommendation and the successor to HTML 4.0.

Defining "validity" for a given purpose is generally quite difficult; technical, domain and political issues must be balanced to avoid the

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Change for the Better

Management tools abound at eBusiness Expo

BY DAVID RUBINSTEIN

NEW YORK — One of the key elements of a successful e-business enterprise is being able to stay on top of the rapidly changing needs and requirements of the underlying applications, as well as deploying the applications.

At the recent eBusiness Conference and Expo held at the Jacob K. Javits Convention Center, several companies released

new products and upgrades to old ones to help e-businesses address problems brought on by the speed of doing business over the Internet.

CHANGE MANAGEMENT

Technology Builders Inc. (www.tbi.com) next month will release Caliber-RM Pro, an extension of its requirements-management tool that the company says is the first to offer in-

tegrated decision support if and when changes should be implemented. Customizable and adaptable to a customer's business practices, Caliber-RM Pro provides the ability to drill down into the data and set conditions on the queried data. With the tool, development managers can review requirement metrics and then use the data to make such decisions as how best to utilize team members, reduce risk and

monitor changes as they are proposed, said Jacinta Lucas, senior technology engineer at TBI.

The release of Caliber-RM Pro will coincide with the release of an update to Caliber-RM, version 3.2, which will offer rich text support, a method for managing change within a formalized change proposal system, and integration with Merant International Ltd.'s PVCS version management tool, Lucas said. Caliber-RM Pro will sell for \$2,995.

Pretzel Logic Software Inc. (www.pretzel.com) unveiled its Pretzel Xcela application life-cycle management solution, a framework that looks at change management in a broader scope and helps companies define and automate processes, according to Andrea Craig, vice president of new business development. Pretzel

Logic, which had been a services company and is expanding into product offerings, built Xcela with the idea that best-of-breed tools can be plugged into the framework during the course of the life cycle, she said.

APPLICATION SERVERS

Borland Software Inc. (www.borland.com) announced AppServer 4.5, the next version of its application server that it claims is the first application server to merge Enterprise Java standards with CORBA via its integrated VisiBroker tool. AppServer 4.5 includes an implementation of the J2EE Connector specification, which the company says allows users to integrate tools and services such as TogetherSoft's Together/J and Rational's Rose modeling tools; Thought

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Borland's J2EE Boast Proves Premature

BY DAVID RUBINSTEIN

At the eBusiness Conference and Expo that began Dec. 12 in New York, Borland Software Corp. was touting the company's AppServer 4.5, claiming, among other things, that the product has passed Sun's J2EE 1.2 compatibility test suite.

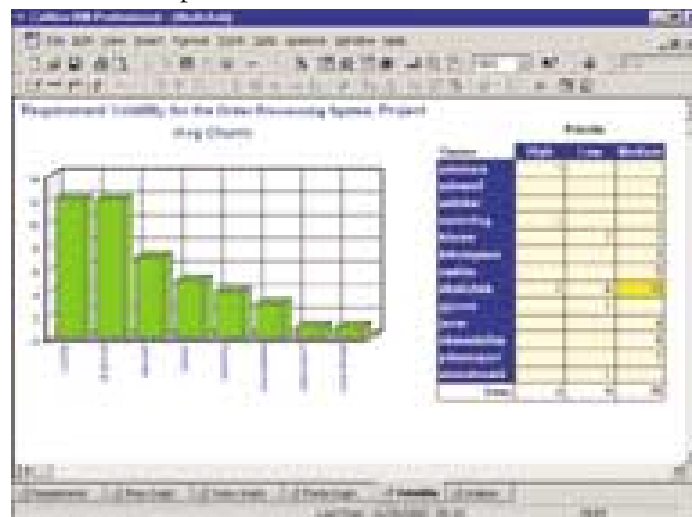
It now appears that Borland's announcement was a bit premature, as immediately after the conference, two Sun spokespersons confirmed that AppServer 4.5 had not yet won Sun's official certification at the time the announcement was made. The issue was expected to be resolved sometime after Dec. 25, some two weeks after the initial announcement.

"We were in discussion about some final pieces of the testing, and they jumped the gun," said Ralph Galantine, Sun's product line manager for J2EE, indicating that compatibility would not be certified until after Christmas. When companies prematurely announce compatibility, Galantine said, Sun speaks with the vendor to find out if there was a communication problem "so there's no confusion as to what compatibility means." Repeated attempts to reach a Borland (www.borland.com) spokesperson were unsuccessful.

Meanwhile, the application server technology within BlueStone Software Inc.'s Total-e-Business platform has passed the

test suite, bringing to eight the number of vendors that have won certification. Six of those vendors—ATG, BEA, Iona, iPlanet, Hitachi and Sybase—already are shipping compatible products. The other two—BlueStone and SilverStream—are developing products to ship soon, Galantine said. (At press time, SilverStream announced it was shipping version 3.7 of its application server, and claimed that it had J2EE certification.)

Galantine indicated that during this quarter, the Java Community Process will release to beta a compatibility test and reference implementation for J2EE 1.3. Galantine expects the test to be finalized by next fall. ■



Changes proposed by users can be tracked graphically in Caliber-RM Pro.

EBIZ EXPO

< continued from page 1

is for approving development changes within both the main-frame and distributed management environments.

Paul Tong, Serena's product marketing manager, said that changes made by developers and grouped together in files on servers are accessed by managers using ChangeXpress, who look them over and approve them or give comments. "It provides a management overview of all the changes, and provides space for comments on the changes or recommendations," he said.

Percussion Software Inc.'s (www.percussion.com) Rhythmyx Content Manager version 3.0 for XML data, a layer of software sitting atop an XML application server that enables developers to assemble content from varied sources and apply working and relevancy rules, features a new content administrator home screen for loading and displaying

content. The screen shows the document status, and allows for further work on the document through a content editor that creates and edits XML documents, enabling preferred files to be added to the document. Once editing is complete, work-flow buttons on the screen provide for final document determination, such as send or approve.

New state diagrams showing the work's process can be updated on-the-fly, reflecting changes in the work-flow column. Prices start at \$175,000.

Meanwhile, **Vordel Ltd.** (www.vordel.com) exhibited a new interface editor for its TalkXML security suite that uses drag-and-drop elements to eliminate the need for hand codes, said Mark O'Neill, Vordel's chief technical officer. He said the tool also offers a graphical environment for using X-Path, the datalink aspect of X-Forms, a specification being reviewed by the W3C that offers a new way to present

form data. The suite also provides a data viewer and a server.

O'Neill said TalkXML can be added to existing systems to create interoperability and extend business onto the Web.

Rogue Wave Software Inc. (www.roguewave.com) introduced its XML Link version 2.0, which brings CORBA files into the Simple Object Access Protocol (SOAP) environment.

Darren Cervantes, Rogue Wave's product manager, said that 2.0's access to CORBA files adds to existing links available for mainframes and databases. He said CORBA files are accessed through the SOAP specification, and handed off to Rogue Wave's Internet Dispatcher for further dissemination into mobile devices using HTTP, SMTP and SMS protocols.

Version 2.0 is still in beta.

PortalSphere Inc. (www.portalsphere.com) showed a new live-update feature to its PortalSphere Application Server for wireless applications. Joe

Carlucci, PortalSphere's vice president of e-business products and solutions, illustrated how the new feature enables a mobile device used by a salesperson to change information—such as salesperson status—at a call center, when linked with a wireless satellite system.

He said the application server builds applications using C++, HTML, Java, Visual Basic, WML and other languages to provide access to relational database systems, mainframes, Unix systems and XML databases.

Attunity Ltd. (www.attunity.com), formerly ISG International, showed version 2.0 of its business-to-business process integration software, Attunity B2B, featuring a loosely coupled architecture to enable developers to link to only those applications that comply with specific requests—such as credit status or inventory—without forcing change within the entire business application relationship. Steve Fisch, Attunity's

president, said such a loosely coupled architecture would be essential to Web services.

He added that version 2.0 also supports EJB and XML, and was J2EE-compliant.

Savvion Inc.'s (www.savvion.com) Business Manager 3.0 development platform for building applications for the Web features new drag-and-drop tools for adding business rules, and streamlined enterprise resource planning and customer relationship management adapters that eliminate hand coding. "You simply put in a few parameters and it creates the code for you," said Viral Sura, a Savvion deployment engineer.

In addition, a new upgraded management console offers a balance score card, in which business or IT analysts define their own parameters to create charts that reflect the company's financial health. Users of the company's current Business Manager version will get free upgrades, available in February. ■

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Pramati Updates Java App Server, Tools

BY ALAN ZEICHICK

Looking to bundle a Java application server and development tools with your product or service offering? Pramati Technologies Ltd., based in Hyderabad, India, offers a matched set: a newly updated component development and testing environment, as well as a J2EE app server.

According to the company, Pramati Studio 2.0, priced at \$1,000 per developer, is a pure Java development environment with an open API for adding new tools that can be integrated

via a common framework. Pramati expects that OEMs will customize the studio software for particular project domains or vertical industries, with specific tools added for telecommunications, finance or other

specialized development.

Pramati Server 2.0, also written in Java, is said to have failover and load-balancing capabilities and to be fully J2EE 1.2 compliant, including compliance with EJB 1.1 and

partial compliance with Sun's EJB 2.0 specifications. The server is available for \$8,000 per CPU for end deployment, although OEMs can set their own licensing terms. The source code for the app server

is included as part of the license agreement with Pramati.

Evaluation versions are available from www.pramati.com. Support is provided from India, and the company has a U.S. sales office in San Jose, Calif. ■

AltaVista Does Java

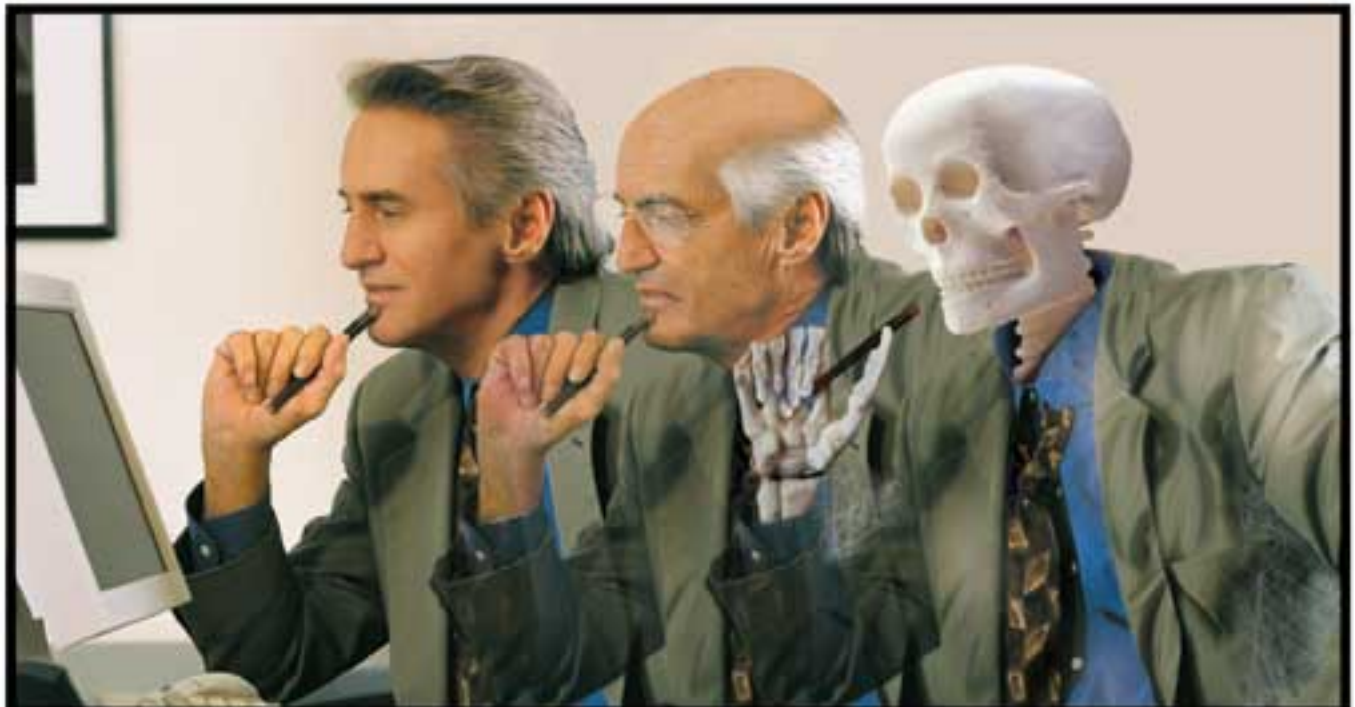
BY ALAN ZEICHICK

Web developers needing to integrate search-engine capability can now harness one of the Internet's best-known technologies. AltaVista Co., which operates the public www.altavista.com Web portal, has long offered a corporate version of its search-engine technology for intranet use. With the latest release, titled AltaVista Search Engine (AVSE) 3.0 Fall Update, the company adds support for the Java and Perl programming languages, and integrates the search engine with Sun Microsystems Inc.'s J2EE specification.

AVSE (<http://solutions.altavista.com>) consists of two separate parts, integrated into a single application. One is an indexing engine, which scours explicitly defined data sources on local or Internet-based servers and databases, reading new files and indexing their content into AVSE's own embedded database. The other is an HTTP/HTML server, which presents a browser-based user interface for accepting user queries.

The search engine can be configured as a JavaBean, Enterprise JavaBean or Java Servlet component. The Fall Update also includes a Java-based e-commerce framework, which, according to the company, can act as the foundation for a search engine-based application.

AVSE 3.0 Fall Update is available now for AIX, Linux, Solaris, Tru64 Unix and Windows NT/2000. Pricing starts at \$25,000 for 50,000 documents. ■



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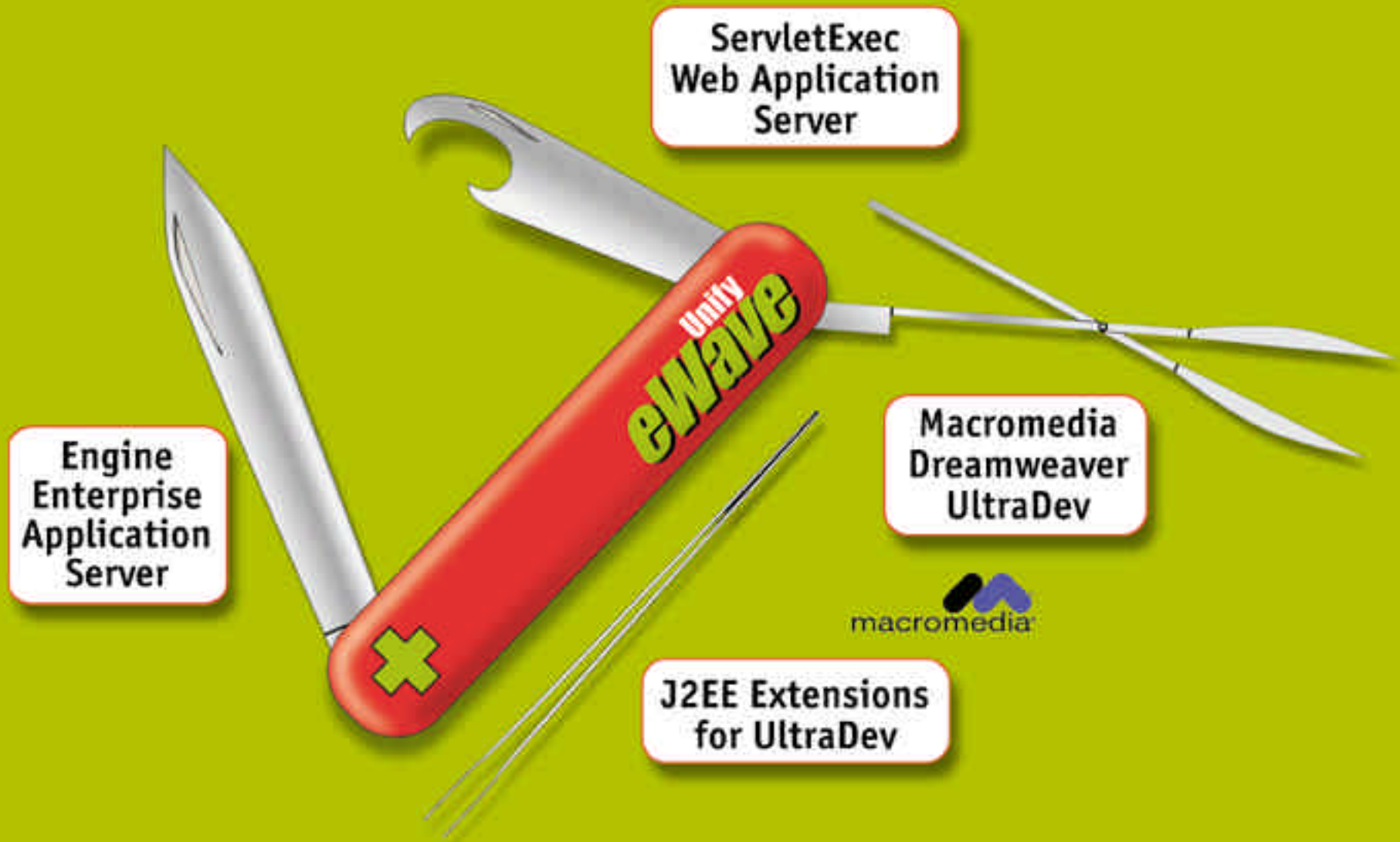
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IBM Expands Web Services Toolkit

BY DAVID RUBINSTEIN

IBM has updated the Web Services Toolkit on its alphaWorks site (www.alphaWorks.ibm.com), adding three new modules the company is floating up as trial balloons to the developer community that implement standards for Web application development.

The first is a module called MQSeries Transport for SOAP, which combines the dominant message-oriented middleware with an emerging standard for distributing XML-formatted data and services over the Web, according to Steve Holbrook, IBM's technology evangelist for Web Services. Holbrook said IBM's embrace of the Simple Object Access Protocol (SOAP) specification will be further supported in releases of WebSphere and VisualAge for Java.

Catalyst Secures TCP/IP Library

BY ALAN ZEICHICK

TCP/IP programming is hard—but developing applications that communicate via standards-based encrypted TCP/IP sessions is even harder. With the right components, however, it doesn't have to be. That's the philosophy behind Catalyst Development Corp.'s latest family of components and libraries for Secure Sockets Layer-based TCP/IP programming, which complements the company's existing SocketTools 3.5 Windows libraries.

According to the company (www.catalyst.com), SocketTools Secure Library includes both SSL and non-SSL versions of the HTTP, FTP, SMTP, NNTP, POP3 and Telnet protocols. It also supports nonsecure protocols such as Whois, Ping, DNS, Gopher, MIME and an image viewer.

Available now, SocketTools Secure Library comes in two versions, each priced at \$697 per developer seat: the Visual Edition, which provides ActiveX controls for Microsoft's Visual Studio and Borland's Delphi; and Library Edition, which provides Win32 DLLs. A \$1,647 Enterprise Edition provides both the ActiveX controls and DLLs, and includes two developer licenses. There are no run-time license fees for applications using the SocketTools libraries. ■

Other specifications, such as XML and UDDI, will be supported in DB2, Lotus Domino and Tivoli, he said.

The second new piece is called SOAP Digital Signature Web Services, which addresses

the issue of security.

The final new module is called Web Services Tooling for EJBs, which Holbrook described as a tool that wraps Web Services Description Language (WSDL) around EJBs so they can be

invoked with a SOAP message as Web services.

In terms of moving Web applications and business-to-business forward, Holbrook suggested a scenario in which a Web service can program-

matically discover mechanisms to engage a component, and to identify them as soon as they arrive on the Web. "To wrapper EJBs with WSDL and take advantage of MQSeries transports to access them via SOAP opens up whole new avenues in a B-to-B context," Holbrook said. ■

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LinuxWorld 2001 Meets the Big Apple

Spring show highlights Caldera, open-source projects

BY ALAN ZEICHICK

Snow may still be on the ground, but that's not a problem for a penguin—particularly for Tux the Penguin, mascot of the Linux operating system. According to IDG World Expo, more than 20,000 attendees will visit the second East Coast LinuxWorld Conference and Expo, scheduled for Jan. 30 to Feb. 2 at the Jacob K. Javits Center on Manhattan's west side.

The Wednesday keynote speaker for the four-day conference will be IBM Corp.'s presi-

dent and COO, Samuel J. Palmisano. He will be followed on Thursday by William A. Swope, vice president of Intel Corp.'s Architecture Group, and by Larry Augustin, founder and



CEO of VA Linux Systems Inc. Friday's keynoter is Dirk Hohndel, CTO of SuSE Linux AG.

In addition to the 15 full- and half-day tutorials and 50 conference sessions, LinuxWorld is

expecting more than 200 exhibitors on the show floor. Special pavilions at the event include a Caldera Learning Center, which will have Linux-equipped PCs for attendees to try; free Sair Linux test certifications; and a .Org area sponsored by VA Linux designed to highlight 23 organizations that sponsor open-source projects, such as the Brookhaven National Laboratory, Electronic Frontier Foundation, GNU Enterprises, NetBSD Foundation and Open Source Development Labs. ■

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CONFERENCE:

Jan. 30-Feb. 2

Jacob K. Javits Center, New York

CONFERENCE HOURS:

Tuesday, 9 a.m.-4 p.m.

Wednesday, 9 a.m.-7 p.m.

Thursday, 9 a.m.-7 p.m.

Friday, 9 a.m.-2:15 p.m.

KEYNOTE SESSIONS:

Wednesday, 10:45 a.m.-11:45 a.m.

Samuel J. Palmisano, president and COO, IBM Corp.

Thursday, 10:45 a.m.-11:45 a.m.

William A. Swope, VP, Intel Corp.

Thursday, 1 p.m.-2 p.m.

Larry Augustin, founder and CEO, VA Linux Systems Inc.

Friday, 10:45 a.m.-11:45 a.m.

Dirk Hohndel, CTO, SuSE Linux AG.

SHOW HOURS:

Wednesday, 10 a.m.-6 p.m.

Thursday, 10 a.m.-6 p.m.

Friday, 10 a.m.-4 p.m.

REGISTRATION:

\$875, Super Pass to three days of sessions and two half-day tutorials; \$225, one-day conference pass; \$25, exhibits only. Additional packages are available. Early-bird discounts for registrations on or before Jan. 15.

PLACE YOUR BETS ON WINDOWS EMBEDDED

BY ALAN ZEICHICK

Over the past year, Microsoft Corp. has made efforts, on both the technology and marketing fronts, to position Windows CE and Windows NT Embedded as two members of a single product family. The latest effort is a conference, owned by Microsoft and produced by CMP Media Inc., dedicated to embedded solutions built on the company's operating systems.



The three-day Windows Embedded DevCon is scheduled for Las Vegas' Mandalay Bay Resort & Casino, Feb. 6 to Feb. 8. The technical program has five conference tracks: Introduction to Windows Embedded, Building and Debugging Devices, .NET Platform, Microsoft Device Scenarios, and Hands-On Labs.

The conference, co-sponsored by BSquare, Hitachi

Semiconductor and NEC Electronics, has invited Microsoft president Steve Ballmer to keynote the event, but as of press time the keynote had not yet been confirmed. The event also has an exhibit floor, with 22 companies scheduled by the end of 2000.

Pricing is \$1,095 for the full three-day program, and \$895 for a two-day. Details are at <http://img.cmpnet.com/edtn/wed/menu.htm>. ■

Web Tester Enhanced With DCOM

BY DOUGLAS FINLAY

Segue Software Inc. has revved its Web testing program, SilkPerformer, to more rigorously test applications during the complete software cycle, from development through production.

In addition to support for CORBA included from previous versions, SilkPerformer 4.1 now supports Microsoft's Distributed COM (DCOM) architecture to enable recording and playback to reduce coding, said John Cheevers, Segue's (www.segue.com)

vice president of applications marketing. "With the current version of SilkPerformer, there are no record and playback functions so developers have to do a lot of scripting," he said.

Even as Microsoft Corp. moves quickly on its .NET strategy for the future, Cheevers expects Microsoft to actively support its older DCOM architecture "because DCOM is already widely utilized throughout the marketplace right now."

Version 4.1 also includes new

security features that enable users to geographically distribute load tests. Cheevers said distributed load tests more accurately simulate the performance of applications that have gone into production, ensuring reliability of applications accessed by global users.

Other enhancements include improvements to reporting, which add database use statistics to give users more extensive feedback faster.

Available immediately, the price is \$24,500 for 100 virtual users. ■

News Briefs

COMPANIES

Vertical Sky Inc. is integrating its Evolution Management component-based collaboration management system with Rose, a UML modeling tool from **Rational Software Corp.** The goal, according to Vertical Sky, is to help developers and IT analysts manage their development life cycle by receiving configuration and control benefits from Evolution Management, without leaving their UML modeling environment . . . **DevX.com Inc.**, a software developers' portal spun out from Fawcette Technical Publications, will host **Microsoft Corp.**'s new Whistler-Savvy Developer Center, a Web-based beta community at www.devx.com/whistler designed to help developers exchange information regarding the company's next version of Windows NT/2000, code-named Whistler . . . **Applied Knowledge Inc.** is combining its ViewPoint/EA prebuilt application components with Sybase Inc.'s J2EE EA Server application server to permit Viewpoint/EA users to deploy existing client/server applications into the Web . . . **Allaire Corp.** is broadening the scope of its JRun J2EE-compliant Java application server by incorporating **Sitraka Inc.**'s JProbe ServerSide Suite—which tunes application performance—to provide performance profiling, memory debugging, code coverage and thread analysis capabilities . . . By adding SyncML technology to its UniSync hub-and-spoke distribution infrastructure software, **PointBase Inc.** looks to give developers both local and remote data distribution, as well as permit them to share data among a broader range of SyncML-compliant devices, applications and services. The company is also combining its Java Application Database with **Metrowerks Inc.**'s CodeWarrior to help developers create applications that manage and distribute information between target devices and mainframe and n-tier databases. The combination will also include **Eliad Technologies Inc.**'s iSmartGrid small footprint Java technology for displaying data in tables, grids and spreadsheets, and **Newmonics Inc.**'s PERC virtual machine . . . **Lutris Technologies Inc.** has expanded its licensing agreement with **Borland Software Corp.** to provide inclusion of JBuilder 4 Foundation development wizards for Windows, Linux and Solaris into the Enhydra 3.5 open-source Internet application server.

PRODUCTS

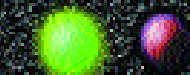
The RSS 1.0 Working Group's **RDF Site Summary (RSS) 1.0 XML**-based application allows Web sites to describe and distribute content and metadata. The application's extensibility, based on modules of XML-Namespaces technology, lets content developers plug functionality into a basic distribution platform . . . Vertical Sky Inc. released **Implementer 5.2**, the AS/400 change management component, as part of its Evolution Management package, which offers change management for Lotus Notes developers and deployment of Lotus Notes changes to the iSeries 400 Domino servers. Critical coordination, control and deployment services for Lansa development applications are also supported . . . Red Hat Inc.'s beta version of **Red Hat Linux for Itanium** processors, based on the Linux 2.4 kernel, is now available at ftp.redhat.com/pub/redhat/ia64 . . . Excelon Corp.'s **Integration Server 1.6** includes enhancements to its XPress engine and a new FTP service. Web service security enhancements, business documents categorization and wireless support for business-to-business networks round out the updates. Price is \$450,000 per server . . . The Apache Software Foundation's **Batik 1.0** is a collaborative development for Java's Scalable Vector Graphics (SVG) toolkit. Applications can use the Batik GUI to support SVG viewing capabilities, export graphics drawn with core Java 2D API classes to the SVG format, and convert SVG content into other formats such as JPEGs and PNG. The program is available at <http://xml.apache.org/batik/> . . . Ilog Inc. rolled out its **JViews Component Suite 3.5**, which supports Scalable Vector Graphics within Java thin clients. Price starts at \$6,500 . . . Vignette Corp. is shipping its J2EE-compliant **Vignette V/5 E-Business Application Platform version 5.6** that supports XML, the Information and Content Exchange (ICE) protocol, RosettaNet, BizTalk and Microsoft Windows DNA, in addition to Enterprise JavaBeans, Java Server Pages and Java Servlets. ■



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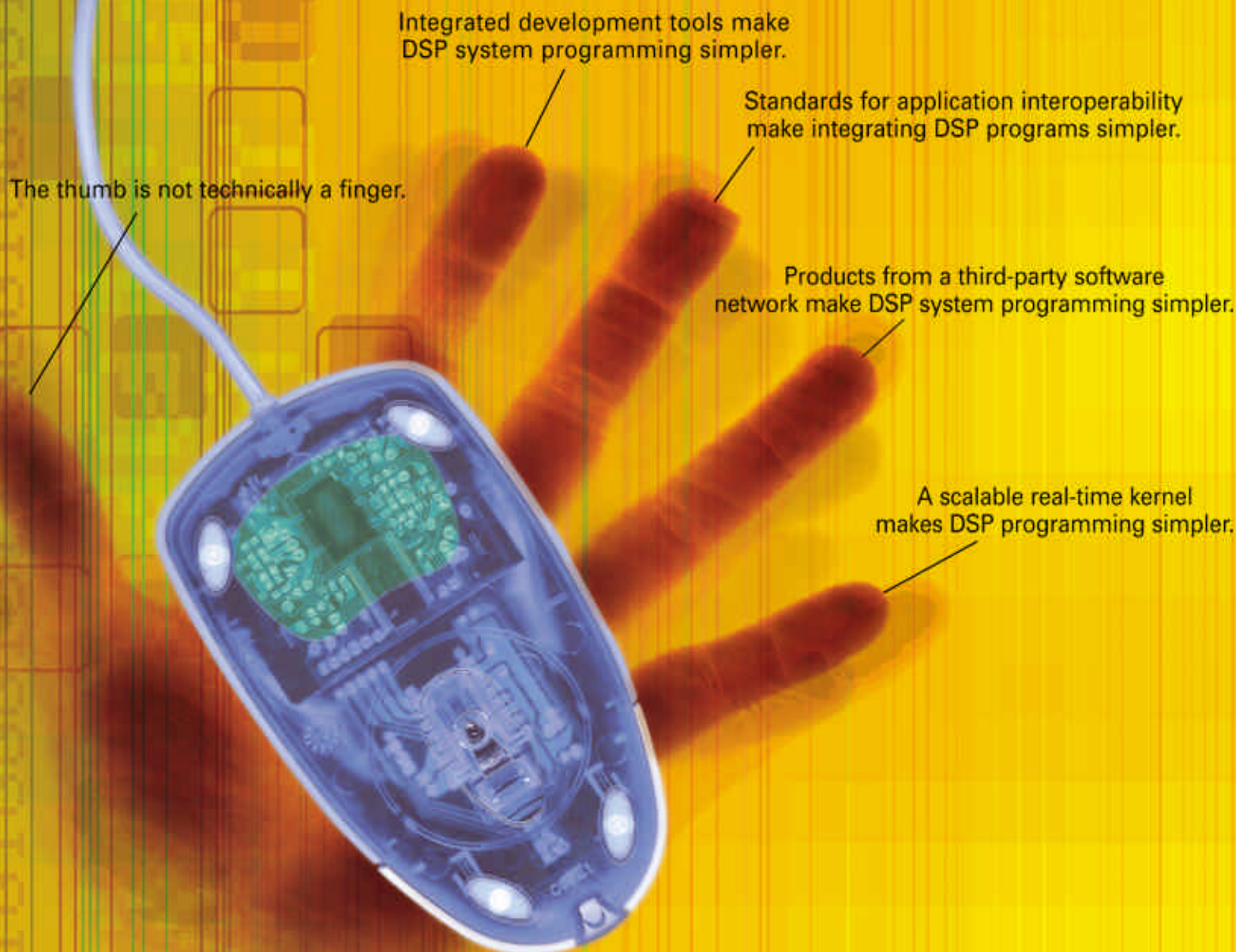
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THE WORLD LEADER IN DSP AND ANALOG



Espial Rebuilds DeviceServer From the Ground Up

Yearlong redesign lets company add ISP functions missing the first time around

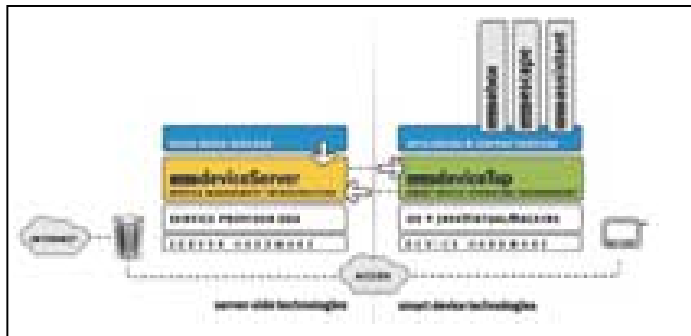
BY EDWARD J. CORREIA

Never buy version 1.0 of anything.

When Java developer Espial Group Inc. released DeviceServer 1.0 early last year, marketing materials referred to it as a service delivery and device management system. But now that version 2.0 is around, the company acknowledges that its first attempt was flawed.

According to Bob Egner, Espial's vice president of marketing, once version 1.0 was out the door, the company set about rebuilding it. "The first version of the product was pretty rudimentary and really focused around device management, providing software updates to devices." Over the course of the year, the server software was almost completely redesigned, this time with more of the needs of ISPs in mind, he said.

Egner said that along with DeviceServer itself, the company (www.espial.com) has undergone an evolution in the way it thinks about the product. "The vision is making technology work for the user, not making



Espial's application-level communications protocol will include an open API.

the user work for the technology," and that Internet access should be completely transparent. "You don't have to know you're connecting."

To fulfill that vision, the reborn system now consists of three main components: DS Central, which contains the system's core device management, user tracking and service delivery functionality; DeviceTalk, a communications protocol and open API; and the Transcoder, which automatically formats content for specific devices based on device profiles and user preferences. "For example, you may want to see Web pages with text only and no

graphics, or just links or graphic thumbnails," all of which can vary by the device in use.

And unlike other transcoders, Espial's conversion software stands out for its flexible architecture, Egner said. For example, the software supports multiple transcoding stages, which Egner said can convert from PDF to HTML and then to WML. The company also plans to publish a transcoding API "so that service providers and device manufacturers can write their own transcoders that fit into the framework."

Egner said Espial believes that the service delivery model is more desirable than current

efforts to shoehorn existing content to fit devices with limited resources. "For instance, if you have a WAP phone, instead of causing the Net to rewrite itself by defining a new standard called WML, you have the opportunity to [deliver] a reduced-functionality browser and provide a way for the service provider to tailor the transcoding to personal preferences." But, he said, most people will be performing functions more suitable to the type of device they are using, which means not surfing the Web from a cell phone, but instead checking weather conditions or stock prices.

Service delivery also is potentially more lucrative to the target ISP and OEM. "Version 2.0 enables service providers to deliver value-added data services on top of the network," such as deploying new service packages, signing up new subscribers, transcoding content and delivering various pay-per-view services, "all centered

around the smart devices that use the DeviceTop client software we provide."

DeviceTop is Espial's Java-based device GUI and service delivery client software. It contains DeviceTalk, an application-layer communications protocol required for devices to become known to and be managed by DeviceServer. Although DeviceTop is currently the only available implementation of the DeviceTalk protocol, Egner said the company will be publishing

the specification early this year with the hopes of wider adoption. The company may charge a nominal licensing fee but will impose no royalties for its use, Egner said.



Espial got DeviceServer right the second time, says Egner.

DeviceTop 2.0 is available now in two versions. The OEM version, which includes device software management capabilities, costs \$35,000 and

includes unlimited distribution rights to DeviceTop without royalties. Pricing for the full-function ISP version is available by contacting the company. ■

Whistler Embedded Goes to Beta

Next release of customizable Windows 2000 to include new developers' tools

BY EDWARD J. CORREIA

With Windows 2000 just about a year old, Microsoft Corp. is well under way with the development of its replacement—and also of an embeddable version of the operating system, both code-named Whistler. The first beta of the desktop and server version of Whistler was released in late October 2000, and the beta of Whistler Embedded came out last month. The company promises that the final release of Whistler Embedded will occur within 90 days of the release of the desktop and server versions, which still is set for the second half of this year.

According to Deanne Hoppe, lead product manager for Microsoft's Embedded Appliance and Platforms Group, the main strengths of Whistler Embedded are in its "connectivity and interoperability with the back end, with the Internet and with other devices." And as the need for these capabilities in-

creases, she continued, a growing number of device manufacturers are forced to "turn more to commercial operating systems," and away from home-grown solutions, which she said occupy about 50 percent of the market and represent Microsoft's main competitors in the embedded space.

Along with Whistler Embedded, Microsoft also has introduced a pair of new tools and upgrades to existing ones. Receiving enhancements were Target Designer, which lets developers select from a database of Windows components to include in their targets; and Component Designer, which permits development of custom DLLs, drivers and other operating-system components that can be added to runtime configurations, giving designers a means to customize and differentiate their products.

But according to Hoppe, missing from the tool chain was the ability to include custom

components in the database. A new tool called Database Manager solves that problem, and also includes the ability to change server location, view database objects and manage platforms and repositories. Also new is the Target Analyzer, which checks a developer's target component list for completeness. "It makes sure that critical

drivers and system information wasn't left out," said Hoppe, who added it will alert the developer to dependency problems "so there's a successful boot to the embedded OS the first time."

Since the formation of its Embedded Appliance and Platforms Group and 90-day pledge last April, Microsoft's desktop and embedded efforts now are

closely tied. "Our development teams are working together. As they are checking in lines of code and features, they also are checking dependencies," Hoppe said.

While pricing for Whistler Embedded has not yet been announced, Hoppe said that per-device royalty fees will "reflect the level of functionality used for the device." Developers' tools will be priced separately. Even after Whistler ships, Microsoft will continue to market and support Windows NT Embedded 4.0, she added. ■

Microware Stands Alone In Intel IXP1200 Microcode Market

BY EDWARD J. CORREIA

Embedded software developer Microware Systems Corp., which has watched its stock price plummet in recent months, has released the Microcode Solutions Library 1.0, the first and only microcode available for Intel's new IXP1200 network processor, the company said.

The IXP1200 is built around a StrongARM processor, which

acts as a control CPU, and adds six microengines, which off-load packet processing tasks from the main CPU. This, according to Ken Kaplan, Microware's president and CEO, is one of the processor's main benefits. Kaplan described the microengines as "extremely high-speed, low-level processors" fast enough to perform network data streaming and "shuffle

bits and packets."

According to Intel, the IX-series network chips also are attractive to OEMs because of their programmability, which eliminates the need to create application-specific integrated circuits, a lengthy and expensive process required for network devices. Multiple IXP1200s can be combined in a device to deliver as much as 10Gbps of throughput, according to an Intel report.

What Microware is offering, Kaplan said, are the programs

► continued on page 18

Sun Unveils MIDP for Palm OS Devices

New licensing scheme to allow ISVs to distribute runtimes, reduced prices to be announced

BY EDWARD J. CORREIA

Things are about to get a lot easier for Java developers wanting a J2ME-certified Java Virtual Machine for Palm OS.

Sun Microsystems Inc. last

month released a developer version of the Java 2 Micro Edition and mobile information device profile (MIDP) for Palm OS devices. The company will also immediately begin

permitting independent software vendors to distribute Java runtimes along with applications, although it has not yet decided how much it will charge for royalties under the

new arrangement.

"What we're putting in place is a new license agreement to let application developers redistribute CLDC and MIDP," said Nicholas Lorain, Sun's senior

product manager for the Java wireless APIs. The Connected Limited Device Configuration, or CLDC, when combined with the MID profile can be used to create a runtime environment for Java applications to run on wireless devices such as cell phones, two-way pagers and handheld computers, he said. And while the numbers are still being finalized, Lorain said that runtime royalties would be reduced to a level that will be "attractive to application developers."


According to Lorain, Sun also has made available a compatibility test suite and reference implementation for the new specification, which OEMs can license to get a head start on application development. "Companies that want to save time-to-market can license the source code of the reference implementation and port it to their specific environment."

The compatibility test suite is not the only differentiator, Lorain said, between Sun's specification and those developed by IBM Corp. and others. Another is the runtime environment itself, and the way in which it was developed. "The IBM J9 is not a certified environment; IBM doesn't even say which APIs it was developed against," he said, referring to IBM's Java Virtual Machine, which runs on a wide variety of devices, including those running Palm OS.

The main advantage to using the genuine article from Sun, he said, is compatibility. "This is the official set of Java APIs that has been developed through the Java Community Process, an open process. A developer writing an application against the official specification is sure that his application would run unchanged on any other certified implementation."

Lorain added that "it's up to application developers to choose whether they want to continue to use a proprietary implementation that may not be compatible, or use an implementation that has been certified."

Sun also is working on a profile for handheld computers, which reportedly will provide developers with a standardized way to access clipboards, fonts and a native user interface on compatible devices. ■



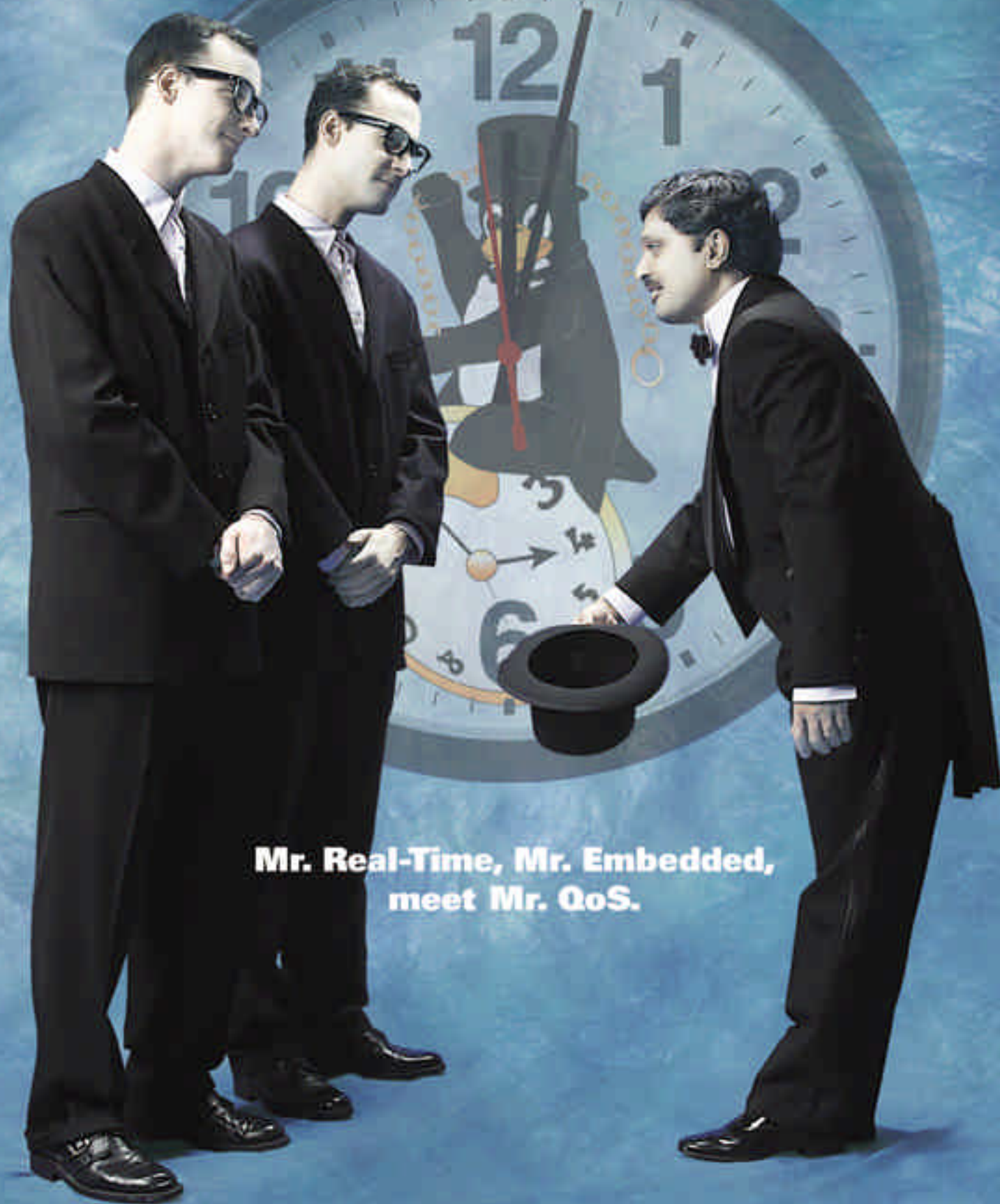
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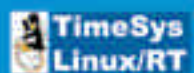
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for JavaScript, plug-ins, SSL, Unicode, a variety of display formats and communications protocols. RGB and YUV frame target buffers also are supported. And like the Fresco core itself, applications developed for the environment can be

migrated unchanged to other hardware platforms, according to ANT, as long as an APE exists for the platform.

The graphical front end includes a set of GUI libraries and an API, permitting vendors to customize and add functionality to differentiate their devices. The modular system requires a C compiler and JVM to run, and

occupies between 380KB and 1.5MB of device memory.

The main advantage of Fresco, Cherry said, is that it enables developers to "decouple the building of the front end from the porting of the product," and even permits development of embedded applications in advance of the selection of the target hardware. "You can

do all of your development and debugging on high-powered workstations. You don't have to touch your target hardware until the thing's complete."

Fresco, which was first demonstrated at the Embedded Systems Conference booths of Wind River Systems and Red Hat in September, has been tested with Linux, pSOS,

ThreadX and VxWorks embedded operating systems using ARM, PowerPC, SH1 and StrongARM processors. Royalty-based, volume-dependent pricing includes all source code for the front-end and APE components and read-only source code for the Fresco browser. ■

MICROWARE

< continued from page 15

required to operate the microengines within the IXP1200 and to support particular communications protocols, something that Intel itself does not offer. "Intel offers fragments and samples for its microengines for specific protocols, but does not offer fully implemented microcode programs for any protocol," he said.

Microware (www.microware.com) also develops and markets SoftStax embedded connectivity applications, and its flagship OS-9, an embedded real-time operating system. But Kaplan was quick to point out that the new microcode is not reliant on OS-9 or any other operating system. "This is the first product that Microware has done like this. Users can use it with any RTOS. So it's possible that some of our customers are licensing the microcode and using it with other RTOSes or Linux or whatever."

With its initial release in December, the microcode libraries included support for ATM only, which Kaplan said was chosen to address what he called urgent industry needs. "A lot of these companies are building protocol conversion equipment [such as] ATM-to-Ethernet devices, and they had a pretty urgent need for it." The company was scheduled to release Gigabit Ethernet and Sonet libraries this month.

Kaplan said although the primary target customers are OEMs building networking and telecommunications equipment, and that most enterprise customers will buy IXP-based equipment only as "black box" solutions, enterprise applications also exist. "There are cases in which end users might wish to program at the microcode level," he said, including the need to make minor alterations to standard protocols for company-specific IP routing, or to create a special firewall or customized IP address translation table.

Royalty-based microcode prices are based on system configuration plus customization and other services required. ■

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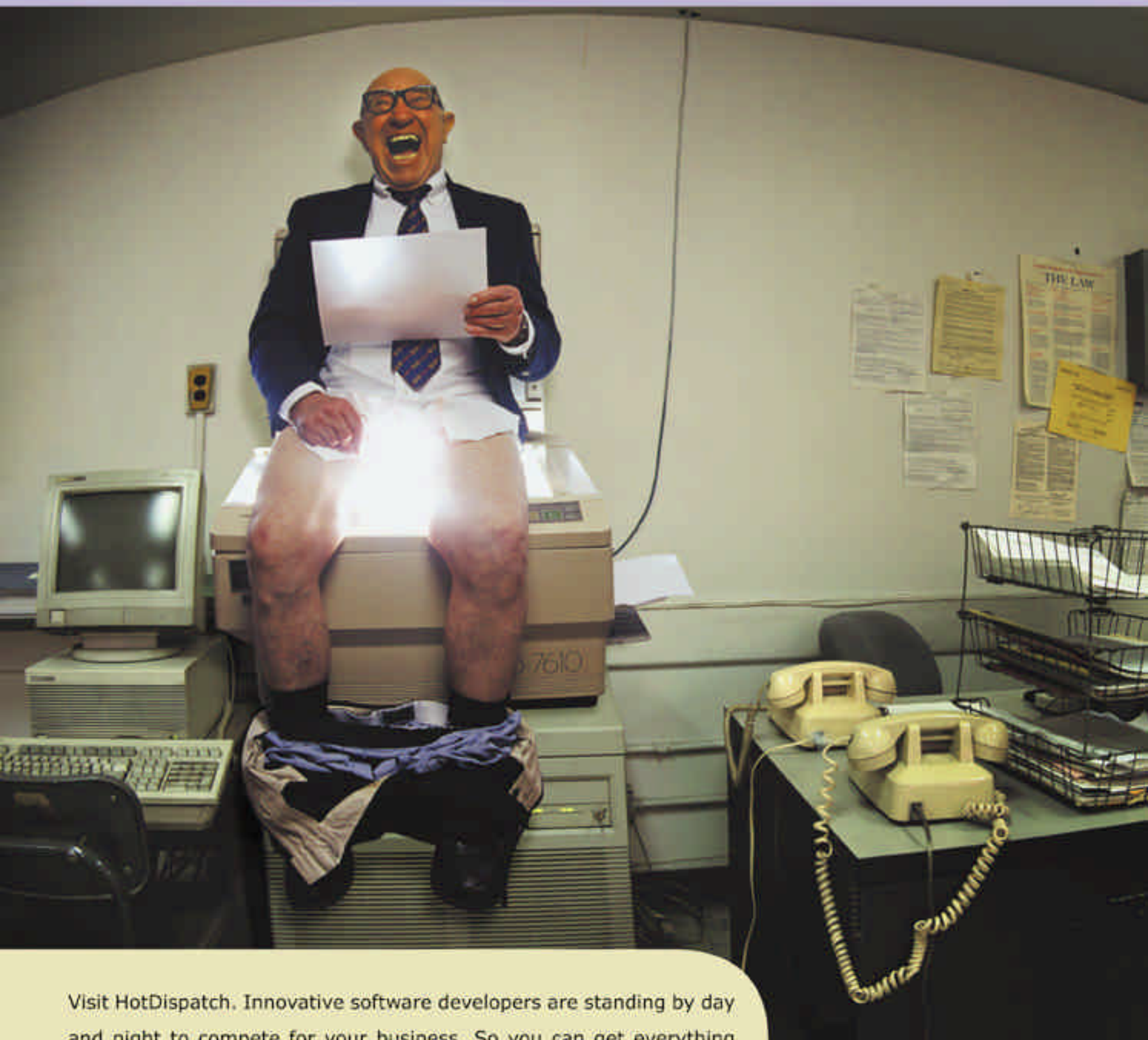
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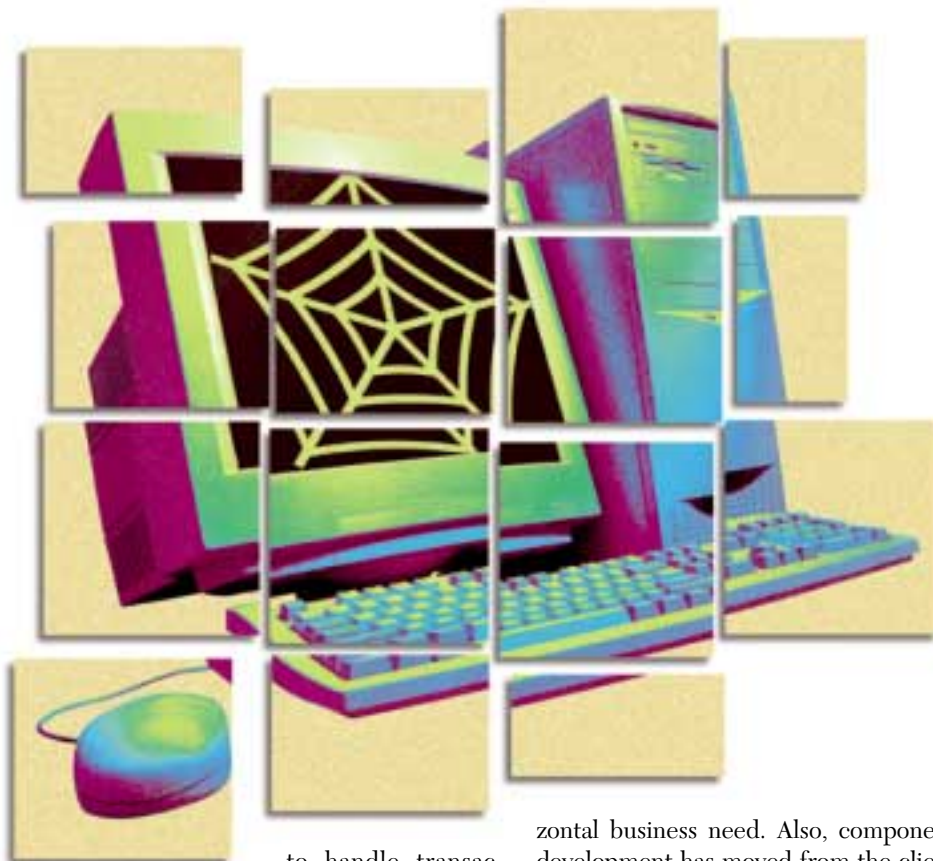
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Weaving a Tangled Web

Components as Web services drive development of dynamic applications

BY DAVID RUBINSTEIN



To many project managers, the notion of component-based development involves the encapsulation of reusable code into discrete packages, in such formats as Microsoft's ActiveX or Sun's Enterprise JavaBeans. Many development shops reap benefits by assembling a collection of components—either home-grown or licensed—and then using custom logic to rapidly assemble a complete application.

But for enterprises looking to leverage the Internet, development with components is evolving on a larger scale, with application frameworks and patterns being designed for reuse, and smaller components getting plugged into the frameworks to create the types of flexible, scalable applications that more and more corporate and development managers are finding necessary for success.

Two of the traditional arguments for component-based development are that it speeds time-to-market, and is a means of overcoming a shortage in enterprise developers. If dropping a piece of code into an application saves time and

resources, supporters of component reuse argue, then it only follows that reusing the architectural framework should save even more of those commodities.

"Component-based development is not only about fine-grained or large-grained components," said Sam Patterson, CEO of component vendor ComponentSource. "Components are becoming the building blocks of the next generation of applications for Internets and intranets."

When discussing these types of components, the new phrase most often bandied about is "Web services." In a component sense, according to Patterson and seconded by others, a Web service is anything that exposes its attributes over the Internet, and which can be accessed programmatically through standard interfaces. A Web service—which could be componentized—could be the site registration application that a user must access upon entering a Web site; it also could be a company's back-end business logic explaining how

to handle transactions. Even a free-standing database engine might be viewed as a component in this definition.

The most popular component model got its start upon the introduction of Microsoft Corp.'s Visual Basic language for Windows, which set the standard with its VBX, OCX and then ActiveX components within the Microsoft development environment. Since then, Microsoft developed COM, which begat DCOM and COM+, while Sun introduced JavaBeans and Enterprise JavaBeans as its answer to ActiveX and COM/DCOM. But, Patterson said, the type of component being developed now has changed greatly. "Visual components were the key, but now we're looking at business logic components. There is no graphical interface, but it fulfills a hori-

zontal business need. Also, component development has moved from the client to the server," he said.

KEEPING IT SHORT

The advantages to using prebuilt components are a shorter development cycle—"CRM components, or e-commerce components, provide 90 percent of the functionality of a system," Patterson explained—as well as reduced pressure on resources such as money and manpower.

"The concept of an application no longer is local to a given machine," said Microsoft's Tom Button, general manager of development tools. "You never have to bind anything. The concept of an application being distributed is dynamic. An application is simply an aggregation of Web services." This is

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DEFINING REUSABLE SOFTWARE

While computer scientists have discussed component reuse for decades, the success of this technology has been narrow, at best. It has only been the recent drive for Internet-based standards such as SOAP, XML, UDDI and WSDL that is moving broad-based software reuse closer to reality.

Rational Software Corp. is looking to drive this concept further with something it is calling the Reusable Asset Specification, a UML-based definition of how to build assets for reuse. The company has been working on the specification internally since June 1999, as part of its application development Accelerators program, and has the support of ComponentSource, Flashline.com, IBM and Microsoft.

Rational's engineers are creating a core for the specification, and then will add profiles to extend it for specific assets

such as components, templates and frameworks, according to Wojtek Kozaczynski, Rational's director of architectures and application frameworks. Within the specification, components are defined as elements that retain their integrity; templates are design elements, and frameworks are larger pieces of the underlying foundations.

"No one argues with the concept," Kozaczynski said. "It's just a matter of execution. People are asking, 'How are we going to do it? What is the feasibility? What is the quality of the components? Who will offer support if something happens?'"

The companies working with the specification realize standards are necessary for both the application architectures, or frameworks, and the components and Web services that will plug into them. "Individual components are not as signif-

icant as the way you put them together," said Rational's senior vice president Eric Schurr, adding that this leaves room for companies to compete with their implementations of the assets. "This will define a standard for reuse beyond what people think of as code modules."

In the business-to-business arena, reuse can save companies money and manpower for development as well as speed their development cycles. "Say you want to include an auction system in your application," Schurr said. "They already have been built. There is a set of requirements known to work, with a design model, and code fragments. You'll want to customize about 30 percent of it, but you're ahead of the game by 70 percent."

ComponentSource is working with Rational on a component-description profile called the Reusable Component Specification. "We're trying to make it easier for businesses to get to a base level and then they can add in their business logic," said

Sam Patterson, ComponentSource's CEO. "The [standardized] pattern describes how components have to work within it, so a developer can test multiple components until he finds the one he wants." The component specification, which covers Microsoft's .NET/COM and Sun's Java/EJB, covers functionality, distribution, licensing and categorization of the components. "If you want to modify your application, display something in a different way or add one-click ordering, it can be done simply because the component can just be plugged in," Patterson said.

Kozaczynski expects the specification to be submitted to Object Management Group Inc. for consideration as a standard in about a year, after feedback from within the community can be taken into consideration. "In about eight months, we'll have a better sense of where we're at," he said.

The specification can be previewed at www.rational.com/eda/index.jsp.

—David Rubinstein

TANGLED WEB

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the premise underlying Microsoft's .NET strategy, which Button described as "the driving vision of the world based on Web services."

"We pushed DCOM as far as we could," he said. "We had

to rethink component-based development for the Internet."

Or, as Eric Schurr, a senior vice president at Rational Software Corp., described it: "You don't build one monolithic thing anymore. It's like building a radio. It's a set of components that work together." Among the advantages here, Schurr ex-

plained, is that if one piece fails, another can be found to replace it without having to rebuild the entire system.

Systems architects talk about a time, in the not-too-distant future, when components are invoked by an application on the Internet, and a transaction is received, without the compo-

nent even being built into the application. It is the vision of Web services, where components reside on the Internet to be called by other components as needed. The shelf life of the solution is shorter, and the data is more real-time, as change and content management tools are used to continually update the

data within these Web services components. "The notion of systems that relate through interfaces goes beyond COM or EJB," Schurr said.

The key to making this kind of heterogeneous computing work better, according to Steve Holbrook, IBM Corp.'s technology evangelist for Web services, is the establishment of standards. "By applying XML to describe things like Web services and components, folks can weave together pieces that already exist. What has been missing is the standards."

In this area, much has been done in the past 12 months. XML, SOAP, UDDI and WSDL are just some of the specifications that will drive the move toward dynamic discovery and invocation, Holbrook said. "It is evolving through object-oriented programming and aggregation," he said. "In the old model, there had to be prior knowledge of what the object model was, and a lot of prerequisites had to be in place" to use components in development. Standards, Holbrook added, break down those barriers to reuse. "In the past, components have been too specialized," he said. "That narrows the domain of where the solution can apply. The looser the coupling, the better."

THE SERVICE BUSINESS

Almost all of the people interviewed for this article agree that the business-to-business market stands to gain the most from the adoption of standardized Web services. David Truog, a research director at Forrester Group, sees an emerging world of e-business networks in which the boundaries of technology and partnerships are blurring. He defines these networks as a resilient structure of interdependent players linked in real time over the Internet.

Blueprint-type patterns and frameworks for the applications required in these e-business networks, Patterson said, can describe the functionality and flow of an application and give developers the ability to populate the framework with components from any vendor because the patterns are written to standards.

This shifting e-business paradigm also will shift the role of developers and their managers, according to Bob Wolf, former CEO of Sheridan Software Sys-

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tems Inc., which recently merged with ProtoView Development Corp. to form a new component vendor called Infragistics Inc. "IT has talked about 'mission critical' for 30 years. With the move to Web-based applications, IT will be in the middle of real requirements on a corporate level," Wolf said. "For the first time, all IT will be charged with time-to-market issues, and held accountable right up to the board-of-directors level."

It is apparent that the software industry agrees this is the direction of Web-based application development. IBM, Microsoft, Oracle, Rational and Sun, to name but a few, all have some sort of Web services initiatives on their plates.

But is this all Buck Rogers pie-in-the-sky stuff, or are enterprise development teams racing to adapt the new standards and technologies?

Three areas in which enterprises are moving, according to Cerebellum Software Inc. chief technical officer Todd Olson, are connecting corporate data with the Internet via mapping; using visual interfaces for describing and aggregating that data; and bridging e-commerce components with corporate data, with a focus on EJB technology. "People are just starting to institutionalize these things," Olson said. "People are starting to figure out what are common transactions and services for e-business, and whether in a Web transaction or a B-to-B transaction they can use the exact same service."

Olson did throw up a flag of caution, though. "People are scared. They can't find developers to handle their existing applications, let alone try to get on top of the new technologies. These technologies, people read about them in publications such as yours and they sound wonderful, until you try to implement them. The first iteration of any technology is not as stable as IT managers need them to be."

Charles Stack, CEO of component vendor Flashline.com, has a different view. "We're past the experimental stage and into practical application," he said. "We're seeing a dawning realization at large companies that if they adopt Java, for instance, they'll have development tools and components that can work

in more than one area. The tools and components are there."

The rapid adoption rate of EJB technologies in certain sectors that are normally slow to adopt new things has surprised Nicolas Robbe, technical markets manager at component vendor Ilog Inc. "EJB was the first step toward component

development" on an enterprisewide scale, he said. "COM was an extremely successful initiative, but clearly was not targeted at large-scale enterprise applications. We are looking forward to .NET."

Bob Cooper, vice president of the industry solutions division at Ilog, said time-to-mar-

ket pressures and the tech-worker shortage make it almost impossible for companies to code everything from the ground up. "A lot of customers want something that can be repurposed," he said. "They need to be able to use something in two or three different architectures, and components

do that extremely well."

A GartnerGroup study indicates that by the year 2003, 80 percent of applications will be built using components. But by then, with the speed with which these standards and technologies are emerging, who knows what the definition of a component will be? ■

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EDITORIALS

Component Service Providers

It's been a long road from structured programming's use of prepunch subroutines, to object-oriented programming's concept of encapsulation, to the modern paradigm of software components. It's been nearly as long a journey from Microsoft's simple VBX/OCX controls and object linking and embedding to DCOM and COM+, and to Sun's Enterprise JavaBeans and Java Messaging Services specifications. But could it be that we're arriving at our fabled destination: a computing paradigm that supports code reuse on a massive scale?

The signs have been appearing for two or three years, but in 2000 the technology matured to new heights, with the Java 2 Enterprise Edition and .NET platforms offering more robust visions of a component-based future. Suppliers claim their application-development frameworks provide 80 percent of a complete system's functionality, leaving enterprise developers to add only user interfaces, database connections and custom business logic. The market for prebuilt ActiveX/COM and Java/EJB components is flourishing, with companies such as ComponentOne and ComponentSource offering extensive catalogs. UML modeling tools and modern IDEs help developers visualize systems as a collection of interlocked components.

Indeed, we're watching the beginning of a new phase in the code-reuse story: the view of components as Web-based services. The very concept of a component is changing to include not only small chunks of functional code, but even complete applications advertising their interfaces over the Internet.

If the vendors in this space can ensure that their component interfaces are platform-neutral and standards-based, the implications of this new paradigm are staggering. Look for new categories of component service providers—call them CSPs—offering online application functionality as this market evolves.

J2EE's Flying Above the .NET

Microsoft Corp. may have greater public mind share than Sun Microsystems Inc., and its .NET initiative has gained broader coverage in the mainstream press than Java 2 Enterprise Edition has. But as Microsoft continues to promote its single-vendor .NET servers and development tools, it will have to contend not with just Sun, but with a small army of certified J2EE licensees.

By not only demonstrating compatibility with Sun's reference platform, but also competing with Sun and each other on marketing and superior implementation, those vendors that have passed Sun's J2EE compatibility suite—and there are now eight of them—are driving J2EE forward at an ever-increasing rate. That's good for buyers, who now have a choice of specialized implementations built on top of a common technology foundation.

By contrast, .NET will be instantiated solely on Microsoft's operating systems and Microsoft's application servers, such as BizTalk, Exchange and SQL Server. One size will have to fit all. Certainly, both Microsoft and Sun are going to be inspired to advance their technologies as fast as possible. But it's likely that competitive pressures in the Java community will offer a unique accelerator that Microsoft's single-player solution can't match. ■

GUEST VIEW

EXTREME MEASURES

Historically, each new software development innovation has started as a ripple in the pond. Some recede. Others roar with tidal wave strength—and then recede. Today, there is a new wave sweeping across the shore of our collective consciousness: Extreme Programming.

Extreme Programming, or XP, seeks to bring new levels of predictability, productivity and rationality to what is still a highly skill-bound craft. XP draws from—and sometimes runs from—its direct and indirect predecessors.

Programmers can feel the reflective influence of Structured Programming, Modular Development and Object-Oriented Development. Managers see the undertow of erosion born of the Capability Maturity Model, Peopleware and the Mythical Man Month.

In a nutshell, XP is a throwback to the very earliest and purest days of software development when the technicians ran the show. What *has* changed is that XPers do not abdicate their responsibility to perform the management function. They do, however, demand to fulfill this responsibility in their own way. For example, XP uses several layers of concepts to communicate its techniques. Although the terminology it uses is easily grasped and appreciated by technologists, it has been known to ruffle the feathers of the more rote management devotees among us.

Because XP is so well documented on the Web, we won't define it here. Rather, what we want to do is describe the benefits XP has yielded for us, and what's caused the most difficulty.

Benefits to Developers.

Extreme Programming is aimed squarely at developers, with its simplicity (both in software design and project management procedures); flexibility (in the form of freedom to revise software designs and project schedules); and feedback (with frequent releases and on-site customers). Because our organization is composed mostly of software professionals developing custom Web-based applications, the promise of these benefits was the initial attraction for us. XP also has

aspects that are intuitively appealing to most software development professionals.

Benefits to Managers. Although XP is often touted as a methodology “of developers, for developers and by developers”—oddly enough, managers enjoy substantial benefits as well.



LARRY KUHN

For example, the age-old challenge of resource leveling and management of task assignments morphs from being the sole responsibility of the project manager into a shared responsibility of the team as a whole.

Developers meet daily to discuss their progress on small, discrete tasks and can determine for themselves how best to adjust their workloads so as to maintain the desired project velocity.

Because the software itself serves as the status report, ascertaining and disseminating real project status is also a self-solving problem. Daily builds and constant review of new features by the on-site customer provide a constantly updated and shared understanding of where things stand.

Benefits to Customers.

Customers are often frustrated because they can't be sure how their requests are being interpreted and implemented into working software. Extreme Programming cuts through the jargon to demystify the art of software development and builds a bridge of common language between customers and developers though the central positioning of user stories within all project planning and execution efforts.

RIPTIDES AND UNDERCURRENTS

Organizations considering a dip in XP waters must recognize that they will not get it right the first time. At Geneer, we employed XP techniques on more than 15 unique projects over the course of 15 months. We've learned that each project team and each client must be prepared to go through a period of adoption.

Also, recognize that although many of the XP practices seem like simple, common-sense advice, some of them are much more difficult to implement than others.

With us, a hard part was the practice of 100% Unit tests.

This practice stipulates that developers write the tests for software components they plan to build *before* actually writing the planned software component. It also stipulates that each time a change is made, all previous tests must be re-executed and passed before the change can be approved.

Getting to the point of “walking the walk” of 100% Unit tests has been especially challenging. Even now, we find that we must dedicate time to indoctrinate first-time XP developers. For more experienced developers, who are often set in their ways, allowance needs to be made to teach the 100% Unit tests' rationale and process, and to demonstrate its benefits.

Another unexpected challenge was the practice of “Do the simplest thing that could possibly work,” meant to foster the counterintuitive notion that because nobody gets things exactly right the first time, you should economize on how much design effort you put into each piece of work. Why? If it didn't cost you much to build it, you would be less hesitant to discard it when a better solution presents itself.

This premise initially offended many of the “skilled software engineers” in our shop, who have always attacked design problems from the exact opposite pole—of doing the best possible job the first time. Predictably, at times, this led to extended and immobilizing “analysis paralysis.” Although those days are behind us now, it's still an uphill battle to change the way people work.

As you can see, Extreme Programming has only a little to do with programming; it's more about project execution and management. It challenges closely held beliefs about “the right way” to develop software. That's okay. Just go with the flow. The tide of XP appears to be taking us where we want to go—namely, better software sooner. ■

Larry Kuhn is vice president of technology at Geneer Corp., an Internet professional services firm focused on helping companies build products and services as an ASP. Reach him at lkuhn@geneer.com.

EXTREME PLANNING

It's not extreme, and it's not about programming. The discipline—or religion or process—of Extreme Programming (XP), pioneered by Kent Beck, is all about managing, motivating and empowering teams of software developers to deliver high-quality software on time, under budget and with fewer-than-usual defects.

But the process, clearly laid out in Beck's original book, "Extreme Programming Explained" (Addison-Wesley, 2000), contains specific requirements. For example: Nobody writes any code until after they build automated software test cases that verify that the code meets its formal requirements. Programmers work in pairs, so that they can explain to each other what they're doing. All programmers are allowed, nay encouraged, to constantly fiddle with every piece of code in the project, so that they can refactor and simplify the code. The project itself is broken into short chunks, each of which might take one to three weeks to implement, test and deliver. Customers should be deeply involved with the development process, and are encouraged to prioritize and reprioritize features and functionality. And it's better to deliver partial functionality

immediately, and then add new functionality in small incremental releases, than to wait to deliver everything all at once.

It's hard to argue with most of those ideals, though others seem to be either counterproductive or even downright dangerous. Should *anyone* on a major development team really be allowed to recode any module at any time? Beck says yes: As long as the code can pass its tests, constant refactoring can only improve the product. That may seem fine to you; but to me, it's an invitation for chaos in all but the smallest development teams.

Beck's latest book, "Planning Extreme Programming," co-authored with Martin Fowler, offers guidance to project managers who are interested in XP but don't know how to plan projects based on its principles.

"Planning" begins with a breezy manifesto about the importance of planning software projects and of including the customer in every step of the plan. "Business people make business decisions, and technical people make technical decisions," say the authors, meaning that the business people—the customers—should make all decisions regarding delivery dates,

project scope and functional priorities. The developers, of course, must provide accurate cost and time estimates to the customer, but ultimately it's the customer's responsibility to make the hard decisions, every step of the way.

TELLING A STORY

Once project managers (and customers) accept their roles, say Beck and Fowler, customers begin writing *user stories*, which describe discrete features of the project. The XP methodology (if you can call XP a methodology) is to describe each story in a simple sentence or two, such as "The system should check the spelling of all words entered in the comments field," written out on an index card.

User stories should be independent of each other, short enough to be coded and delivered in a few weeks, and testable using automated test suites. On a regular basis, the project manager reviews the stories with the programmers, recasts if necessary longer stories into multiple short stories, and develops estimates as to the cost and time required to build each story's functionality in the project. The customer then sets priorities based on business goals as well as technical dependencies (there's no point spell-checking a data-entry field if that field has not been added yet), and the project manager hands out the

highest-priority story cards to the project's programmer teams. When the programmers are finished, the process repeats itself.

If the story-by-story development scheme is going to work, the project and team must be able to deliver accurate estimates to the customer. XP keeps the estimation process simple—there's no function-point analysis here! Rather, each user story should be short enough that after a little practice, the project manager can estimate its complexity, primarily by comparing it with other stories that have been completed. In some cases, members of the project team might have different estimates. In that case, say Beck and Fowler, go with the *shortest* one, to keep the project moving and stop the programmers from being too conservative.

The user-story writing, review and coding cycle, the book argues, is XP's strength. Because nobody is asked to commit to a complete specification of an entire project up front, and customers can change or add new stories at any time, XP is inherently flexible and adaptable to rapidly changing business needs. But that flexibility must be tempered with reality—if requirements are always changing, then the project never gets completed. The solution to that is the *release plan*, which specifies a series of dates, perhaps a few months apart, on which the team will stop and deploy what's written to the cus-

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ALAN ZEICHICK



GUEST VIEW

WHAT MAKES AN APPLICATION SERVER SUCCEED?

When the Enterprise JavaBeans specification was first launched in early 1998, the event was akin to a gun firing. That was the day when the EJB server race for dominance started. At that time, every application server vendor had a fair chance for their product to become the No. 1 product in the industry. But as we look back on things today, midway through that race, some of these vendors are doing better than others in the market. But why?

First, organizations do not really want 30 or more EJB

vendors. No market can bear that many competing vendors. It's simply too difficult for an organization to choose which product to buy. And once a product is selected, the chances of finding developers that understand that product are slim to none. Society naturally wants a single leader within a small ring of two or three dominant EJB server vendors. Other vendors may exist, but they will fill a much smaller need.

Once the ring of dominant vendors forms, those vendors will have a much easier time competing. The reason is that an ecosystem of products, tools and people begins to form around those vendors. Examples today include EJB testing

tools, development environment and components. This phenomenon of an "ecosystem" forming around dominant vendors creates a powerful network that is hard to break during later stages of the race, because a network of businesses is helping the EJB server vendor to remain dominant. This means the dominant vendors in the early race will gain massive benefits later on, if they can hold onto their positions. And unfortunately, the rest of the pack will have a tougher time competing, because they don't have such an ecosystem. They will find it much more challenging to find other vendors to integrate with them as well as professional services organiza-

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LETTERS TO THE EDITOR

PRAISE FOR ONLINE EDITION

Bravo! Finally, a publisher that is generating an electronic publication! How wonderful, no printing cost, no postage and no paper to dispose of after reading. Maybe others are doing this, but I am not aware of them. By saving issues in an archive folder I can "Find" articles with ease. I think this is great!

Randy Pryer

IS Manager, deBoer Inc.

CORRECTION

U.S. pricing for Artisan Software Tools Inc.'s Real-time Modeler is \$3,295, and the price of its Real-time Studio Professional is \$5,995. An article in the Dec. 15 issue ("Artisan Adds Package Support to Modeling Suite," page 9) incorrectly reported the prices.

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ASP.NET, SEDUCTION REDMOND STYLE

Microsoft was the first company to really peg the server-side scripting market with the original Active Server Pages specification. But a good idea is rarely alone, and Sun soon came along and ate some of Redmond's lunch with Java servlets, EJBs and especially Java Server Pages. A key attraction here, of course, is wider platform support. In its countermove, Redmond decided to ignore the platform issue and instead concentrate on delivering greater flexibility and development speed over Windows 2000 via ASP's next generation: ASP.NET.

If you think this is related to Microsoft's .NET Framework, you're right. Like Visual Studio 7, the C# programming language and all of last fall's new initiatives, ASP.NET accesses the object-oriented .NET Common Language Runtime (CLR). The basic deal here is that the CLR sits between the developer and various operating-system-related headaches, including authentication, file systems, garbage collection, network configuration, etc.—all the while, according to Microsoft, at least, increasing both application performance and development time.

On the development time side, they're probably right. ASP.NET jumps the evolutionary process and turns ASP develop-

ment on its head. Where ASP might have been described as server-side scripting, ASP.NET is much more a real programming effort. For one thing, ASP.NET applications are compiled via the CLR, which is a boon for deployment and long-term speed, but creates a serious performance hit when the application is first run.

This is a far cry from traditional ASP development where HTML and scripting code are intertwined on a single page, each easily broken by the intrusion of either HTML or ASP coders. ASP also makes use of scripting languages only, which isn't much when you're talking about distributed application performance. For those courageous individuals who have tried moving some of these lines into COM, you've no doubt run into the ASP-to-COM deployment problem. In this hell, the process of replacing DLLs is pretty much guaranteed to bring down your Web server at least once with every update. With ASP.NET's focus on compilation, you not only avoid COM deployment issues, you also keep HTML code and ASP.NET code neatly segregated.

In addition, Microsoft has deliberately steered ASP.NET development toward more of a Visual Basic paradigm, probably

to give C# a boost since this language is one that Microsoft is recommending for the development of ASP.NET pages. For instance, where once you'd need to build separate ASP pages for every leg of a sequential task, ASP.NET lets you use advanced tools like functions to condense these operations into a single page.

On the technology side, ASP.NET also has a number of enhancements. The compiled nature of these pages, as mentioned, is a big one. Not only does this offer performance gains, it also lends development flexibility as long as you're using a .NET CLR-compatible compiler. While most of these are Microsoft-oriented, there is one available for Java and for Perl, APL and COBOL.

ASP.NET provides more performance boosting via caching. This allows developers to use a data-caching module to designate specific data to be cached, as well as how long and when to refresh. Under traditional ASP pages, this data would need to be reaccessed every time the page was used; this way, commonly used data remains easily accessible to users. You've even got access to advanced database functions by using ADO+, the enhanced collection of ActiveX Data Objects, which allows new features like multidimensional record processing, although I wouldn't recommend this approach if access time is an issue.

WINDOWS WATCH



OLIVER RIST

THE PEOPLE PROBLEM

The open-source world is not riding high in the public's estimation these days. High-flying stocks have crashed, Mozilla is not all we hoped, and the latest revision of the Linux kernel has endured Microsoftian delays on its way to release. The unwarranted exuberance that troubled or quadrupled a company's valuation upon issuance of a news release with the word "open" in it has been replaced by cynicism among investors and the media.

These events are troubling, but they do not mean open-source development is necessarily a bad idea. You need not scrap your plans to implement your next internal development project as an open-source effort. All of the benefits described in Eric Raymond's "The Magic Cauldron" remain in effect, potent and undeniable.

However, you are likely to have a difficult selling job on your hands. If you fail to win the support of others within your company, their reluctance, doubts and resistance will bring you down. You must garner support from coders, team leaders, IT management and corporate management.

Your first thought may be to outline your thinking in a white paper that you can distribute throughout the company. This is a good instinct, but the arguments that convince coders to be enthusiastic about open-source development will not be persuasive to IT managers. The factors that lead to executive support will not impress team leaders. You must

address each group in its own language.

Put down Fergus O'Connell and pick up Niccolo Machiavelli. It's a people problem.

LIGHTING A FIRE UNDER THE CODERS

You may be reluctant to spend much time crafting arguments to persuade staff programmers to support your initiative. They work for you, after all, and they'll do what they are told.

But never underestimate the ability of staff workers to affect project success. They do the bulk of the work. If they don't believe in the project, their lack of enthusiasm will inevitably be translated into slower, less careful work. You needn't worry that they might deliberately sabotage the project (though they may) or employ passive-resistance strategies to slow it down (though they may). The truth is, developers work at optimum efficiency only when they believe in the project's goals.

Communicate with coders in the language they understand: cool features, advanced tools, cutting-edge architectures, challenging techniques. Promise them they'll be working with state-of-the-art tools and a code base that's been vetted by the world's best hackers. Let them know their fingerprints will be on a public code base if their work is good enough. That's how you motivate programmers.

MOTIVATING TEAM LEADERS

Don't mention whizzy features when you talk to the team leaders. Workgroup managers have seen what happens to productivity when developers get caught up in the advanced features of complicated widgets. That's the last thing they want.

Team leaders are interested in productivity, and that's how you sell them. Tell them about the head start you'll get from working with an established code base. Show them how many proven tools are available. Explain that they'll be able to rely on the worldwide open-source community when they need to answer a technical question or find a replacement for a departing team member. Team leaders know they are judged on whether they can meet deadlines without a lot of expensive overtime. They want the project to run smoothly. Open source is a good match for what team leaders want.

OPEN SOURCE



J.D. HILDEBRAND

CONVINCING IT MANAGEMENT

The IT director's attitude toward change can be summarized in a single question: "Do we have to?" Developers get caught up in the intellectual excitement of new technology, but an IT manager never does. More than anyone else in the organization, the IT director understands the value of proven tools, proven architectures and proven approaches. IT directors understand the cost of change, including indirect costs, and they understand that resources are finite. They function as

ASP.NET represents a real step forward in Web application development. My only trouble is that while it's very cool, I'm right back to the same old Microsoft saw: platform confinement. ASP.NET requires the .NET CLR, which in turn requires Internet Information Server as the Web server, a .NET-compliant development tool and Windows 2000 Server. This effectively puts ASP.NET beyond the reach of anyone running Apache over Unix, still by far the most popular—and by all reports scalable and reliable—Web serving platform around.

True, Microsoft intends to take a bite out of Unix with Windows 2000 Advanced Server and Datacenter Server, but these are still unproven platforms. And even if they do work as advertised, you're looking at a lot of porting work and budget dollars to move your existing applications. Not to mention the additional product spiral when Windows 2000 Server begins asking for a full Active Directory implementation as well as more BackOffice 2000 apps.

From a technology standpoint, ASP .NET is a major step forward in the way programmers can think about Web development. But from a practical perspective, its attachment to the Microsoft operating platform remains its biggest limitation. ■

Oliver Rist is vice president of product development for rCASH in the REALM. Reach him at orist@therealm.com.

gatekeepers, withholding resources and approval from all but essential initiatives that earn their grudging support.

To convince the IT director, outline the dangers of sticking with the proprietary-software approach. Explain the costs and risks. Present open-source development as the safer alternative.

IN THE EXECUTIVE SUITE

Good CEOs evaluate new ideas by plugging them into return-on-investment formulas. They are interested in initiatives that confer market benefits, operational efficiencies or competitive leverage—preferably all three. CEOs insist on knowing the cost of implementing a new proposal, but they are also mindful of the cost—in lost momentum, reputation, competitive position—of doing nothing.

When you meet with the CEO, take the broad view. Do research on your company's competitors and include that information as background. Outline the cost of doing nothing and be prepared to answer questions about the relationship between resources and delivery dates.

Build support for your project by addressing these four constituencies in their native languages. You'll have a much better chance of getting your open-source project launched and seeing it through to successful completion. ■

J.D. Hildebrand is the former editor of such publications as Computer Language, Unix Review and Windows Tech Journal. Reach him at jdjh@sdtimes.com.



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SPECIAL ACHIEVEMENT AWARDS

Now that the new year has begun, we should pause for a moment to recognize last year's unique achievements in our industry. Some awards given out in this column are for spectacular successes and failures that have not garnered much attention from the press but, I firmly believe, have not escaped the notice of our astute readers. Such as the...

Wish I Had a Vision Award: To Eric Schmidt at Novell. (Curiously, the previous winner of this award was Schmidt's predecessor, Bob Frankenberg, who quit Novell having done just as little and with the company's stock price exactly where it is today.)

Wish I Had Not Had a Vision Award: To C. Michael Armstrong of AT&T.

Herman Hollerith Award: To Katherine Harris, Florida Secretary of State, for proving conclusively that card readers of the 1970s were actually far more advanced than we ever thought.

Most Welcome Change in Culture Mores Award: To the growing refusal to allow use of cell phones in public establishments.

Worst New Name for a Company Award: To MarchFirst (from the merger of USWeb/CKS and Whittman-Hart). The company's new name was chosen

because March 1 was the date on which the merger was signed. (And to think these guys give creative advice to their customers!) Runner-up: Sitraka Software (formerly KL Group).

Best New Old Name for a Company Award: To Borland, the former Inprise Corp. (Previous winner: NCR became AT&T GIS became NCR.)

Just What I Needed Award: To Microsoft for providing a new language, C#, that has no definable advantage except, of course, that it is touted by Microsoft. Don't laugh—this strategy worked for Visual Basic.

Best Trade Show of the Year Award: To JavaOne, by a long shot.

Culture Clash We'd Have

Paid to Watch Award: To Hewlett-Packard's now-cancelled acquisition of the consulting arm of PricewaterhouseCoopers.

Least-Compelling Upgrade Award: To Netscape 6.0.

Were They Sniffing Glue? Award: To SCO, for giving away its Unix business and keeping Tarantella, whose sales—by the company's own admission—have to jump enormously for SCO to stay afloat. Runner-up: Dell, for its entry into the Web hosting business.

And the compelling rationale is?

We Try Harder Award: To perennial No. 2, Larry Ellison, whose fortune briefly surpassed that of Bill Gates after Microsoft's stock tanked when the company lost the DOJ's antitrust case. Ellison's hold on the No. 1 spot was short-lived as Oracle's stock was drubbed by the Nasdaq collapse. During his tenure as top dog, Ellison won our **PR Nightmare Award** when it was disclosed he hired private detectives to dive into Microsoft's garbage dumpsters to find trade secrets he could use.

Technology Surprisingly Impervious to the Broadband Revolution Award: To the 56Kbps limitation on dial-up modems.

The Apple Award (given to technologies that are truly innovative but dismal sellers, named after Apple Computer because of the company's frequent wins in this category—the Lisa and the Newton, for example): To the Mac G4 Cube, dubbed a supercomputer by Apple marketing. But the so-so performance, lack of PCI slots and absence of a reliable on-off switch made even the Mac faithful think different.

Motif vs. OpenWindows Award: To Linux users who are fomenting a bitter split as to whether KDE or Gnome is the better desktop. Unix lives, rah!

Technology We'd Love to See Work Award: To Bluetooth.

Technology We'd Love to See Work Better Than Bluetooth Award: To cellular phones.

Scenario We Never Would Have Predicted Award: To AMD's ability to outduel Intel for this long.

Iran-Iraq War Award (given to the contest whose outcome no one cares about—previous winners: Netscape Navigator vs. Internet Explorer): To Palm's handhelds vs. Handspring's Visors.

Industry Personality That We Haven't Missed During 2000 Award: To Kim Polese of Marimba Technologies. (Previous winners: Katrina Garnett, Crossworlds Software; Gil Amelio, formerly Apple; Kevin Mitnick, hacker with no known company affiliation.)

And, finally, the **Special Award** to all the cocky, annoying paper tigers who blathered about the new economy and contended that only they knew how things should be done in the new, wired world: an oversized ashtray engraved with the following ticker tape: "Amazon -82%, E-Bay -75%, OpenMarket -95%, Priceline -96%, Yahoo -82%..."

Did I miss anything? Let me know. ■

Andrew Binstock is the principal analyst at Pacific Data Works LLC. Reach him at abinstock@pacificdataworks.com.

MIDDLEWARE WATCH



ANDREW BINSTOCK

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THE TRACERT TO HELL

For a system that was designed to survive a nuclear war, the Internet sure can be fragile. Providing Web services is a seemingly endless series of exercises in nail-biting and fire-fighting. Not just because most Web services are put together with less-than-ideal software engineering discipline, but because Web services involve so many dependencies on resources that are both hidden and beyond control. Worst of all, the nature of Web services involves sudden explosions of activity, necessitating that even the most casual service address reliability issues.

A few weeks ago, I wrote a column about managerial vs. worker perceptions. Rather than just print a quiz or create a Web site that simply printed the "right" answers, I wrote a servlet that scored the quiz. Pretty much the definition of "no big deal," the code had a grand total of nine control statements and took probably an hour to write and install on my server. My server is reliable enough for any reasonable anticipated workload.

As is typical with printed media, SD Times arrives in mailboxes around the country on different days. On Wednesday I saw the first accesses to the scoring servlet; Thursday showed considerably more. I expected to see another sharp increase on Friday and was curious to know how the weekend would play out—would people read SD Times at

home or strictly at work? I went to bed Thursday night with no apprehension.

The next morning, checking my e-mail with my first cup of coffee, I naturally opened first the one marked urgent from the editors at SD Times. They, who apparently rise with the roosters, were receiving messages from East Coast readers that the quiz wasn't responding. I quickly checked the status of the server—no sign of a crash. I tried the servlet myself—no problem. Probably a misspelled URL somewhere, I thought, and fired off a note to that effect. I was working at a client's site that day, and got in my car with a light heart.

Ninety minutes later, I again checked my e-mail. People were still having trouble. Again I tried the system myself and this time, sure enough, I suffered a time-out. I tried other pages on my site, none of which were responding. Feeling the first trickle of sweat, I fired up tracert only to find out that, sure enough, messages weren't getting through. As far as SD Times readers' knew, a newspaper devoted to software development managers couldn't run a simple Web site.

I called my ISP and was told that one of our suddenly common rolling power blackouts (Ah! The joys of deregulation!) had affected its systems in Southern California. It is one of the

miracles of the Internet that a message between two locations just 25 miles apart may route over 600 miles transparently, but I was disappointed that the complementary miracle, in which messages route around rolling blackouts or just-created radioactive wastelands, did not seem to be in play.

Not long ago, I was involved with a system that was to be demonstrated to the government of China the next morning. Naturally, this was a huge deal to the company, and we had commandeered the development servers into doubly redundant backups of the demo server. Basically, we all put our hands in our pockets, duct-taped them there and watched the pretty lights on the firewall blink. And then the power went out.

The UPSes all worked perfectly and we were able to perform clean shutdowns of the servers. It didn't take us long to determine that a Lincoln Navigator had taken out a telephone pole just down the road. Within an hour, we had a rented generator providing the dirtiest power I've ever seen. Every few minutes, the UPSes would scream and shut down. The CEO was on the phone from Japan, getting more and more apoplectic, when the lights came back on. He called a few hours later as his flight was about to depart. Everything was still fine, but he wanted the entire engineering and IT staff to stay the night,

as his meeting was to start sometime after midnight our time. Of course, our presence was entirely symbolic—our fate was in the hands of Pacific Gas & Electric. (As it turned out, the CEO flew to the wrong city in China and missed the meeting entirely, ruining the deal before it ever got started. There's a moral in that.)

Whether it's a deal-making demo, a quiz-scoring servlet or your entire business model, Internet time is unforgiving—windows of opportunity open and close rapidly. If a router failure closes you off for the one day per year you need your system, your redundant servers and bulletproof code is worthless. When a power outage shuts you down for an hour in which a deal is being made, your six-sigma system won't impress your management, bankers or customers.

Messages began routing to my system again on Sunday; there's no way to tell how many page hits I missed that Friday and Saturday. I thought that was it, but today my DNS service appears to be offline. That's it, I have absolutely lost confidence in my ability to run a Web service in the event of nuclear war. I'm writing my congressperson and asking for a refund on this whole Internet thing. ■

Larry O'Brien, the founding editor of Software Development Magazine, is a software engineering consultant based in San Francisco. Reach him at lobrien@email.com.

BOOK WATCH

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tomor. Even if a few user-story estimates prove to be too optimistic, the release dates should be inviolate: Nothing erodes confidence faster than missing deadlines.

Extreme Programming certainly lends itself better to some types of projects than others. An e-commerce Web site, end-user application or collection of components? Yes, incremental feature-by-feature evolution is a good way to go. The firmware for the Space Shuttle, an operating system or a standards-based compiler? Hmm, probably not. For big projects with firm specifications, traditional requirement-gathering, estimation and management techniques are better, and XP need not apply. If you work on the former—or even if you work on the latter—read this book. Its casual yet pragmatic attitude toward software development management, like XP itself, is a breath of fresh air. ■

"Planning Extreme Programming." Kent Beck and Martin Fowler, Addison-Wesley, 2000. Trade paper, 139 pages, \$29.95.

Alan Zeichick is editor-in-chief of SD Times.

GUEST VIEW

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tions to partner with them; to hire developers that understand their product; or to find customers to purchase their products. Thus the struggle to become dominant in the early race is of paramount importance.

So what are the key reasons why these vendors are positioned as they are?

Existing, loyal customer base. IBM reigns king here, and this is the primary reason why IBM's WebSphere is a contender today. They have massive market share with CICS, and those customers will be given a natural path to become WebSphere customers. Other vendors with strong existing customer bases include Iona (OrbixWeb), Inprise (Visibroker), iPlanet (Netscape Application Server/Kiva) and BEA Systems (Tuxedo).

Word of mouth. This is the best form of advertising an application server vendor can hope to get. A classic example of this is GemStone's app server. There is a cult of developers who are enamored with GemStone because of the high quality of their product. BEA has a noteworthy cult as well, because their EJB product was first to market and very easy to use.

Getting the product to developers. This is important to form a commu-

nity of developers that understand an EJB product. After all, you will likely buy the product you are most familiar with. BEA has executed quite well here. They've bundled their product in many media, such as bundling a CD-ROM in books, bundling free CD-ROMs with Java magazines, giveaways at conferences and free downloads of their product from their Web site. Many other vendors were hesitant at first to offer free downloads of trial products, perhaps because they were concerned with intellectual property issues. Those vendors are now paying gravely for that decision.

Compliance with the latest specs. Again, BEA has shone. They were six months ahead of the pack with their EJB 1.0 product, which positioned them extremely well. And they pulled it off again, recently releasing their EJB 2.0 beta server far sooner than any other vendor. History, it seems, has repeated itself, and other vendors are playing catch-up.

Ease of use. Again, BEA gets top marks here. Installing their application server on a Unix machine is as simple as unzipping a file. Other vendors have made the procedure much more complicated, which creates undue confusion for developers.

Today, the two products that are emerging as dominant are BEA's WebLogic, followed by a more distant

IBM WebSphere. Other vendors that still have a strong chance in the race include ATG, Inprise, iPlanet, GemStone/Brokat, Allaire, Oracle, Persistence, SilverStream, Bluestone, Sybase, OrionServer and jBoss (open source). Many of them have superior products and still have a chance to enter that dominant ring. It is their challenge to execute perfectly over the next six to 12 months for that to happen. They will also need to show demonstrated value above and beyond simple EJB servers, by offering solutions that are either industry-specific or provide additional value, such as personalization or work-flow support.

The endgame of this race will be interesting indeed. ■

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CHANGE

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Inc.'s CoCoBase for object-relational mapping capabilities; and Borland products such as the JBuilder development environment and AppCenter for managing distributed applications.

MAINFRAME-TO-WEB

At the eBusiness Expo, **Merant International Ltd.** (www.merant.com) introduced EnterpriseLink 4.0 as a cornerstone to its Egility Legacy Transformation and Integration solution, enabling developers to migrate mainframe applications to the Web without heavy programming or changes to the mainframe system. A key new feature in release 4.0 is a tool called Component Generator, which exposes AS/400, CICS and IMS COBOL applications as services to run in any Java IDE and on any Java-compliant application server by generating JavaBeans, EJBs and XML components, according to Craig Marble, product manager for EnterpriseLink. By using Merant's Revolve COBOL analysis tool, developers can learn relationships between fields within applications, and analyze how one change will affect other pieces of the system, before generating the components. Release 4.0, which runs on Windows NT, supports the EJB 1.0 specification.

Marble said EnterpriseLink uses IBM's MQSeries as the communications

link between the components and the mainframe applications, and that Merant's Mainframe Express emulator can be used to develop and test the generated components. A Classic edition of EnterpriseLink can be used for any 5250 or 3270-enabled application, Marble said, adding that Component Generator will be upgraded for COM components in a future release.

WINDOWS-TO-WEB

Menta Software Inc. (www.menta.com) said that by the end of the year it would make available WinToNet, a thin-client solution for delivering Windows applications natively to any Internet device, regardless of platform.

Bill Oakes, vice president of marketing, claims WinToNet is the only solution on the market that does not use Windows Terminal Service to complete the task, resulting in a huge savings to users because there are no licensing issues. He described WinToNet as a server application sitting atop Windows NT, which takes Windows API calls and converts them to Java APIs, which can be delivered over the Internet; this provides a native Windows look and feel inside a Java applet, he explained. Version 1.2 of WinToNet, due out in the summer, will focus on the enterprise, with an adaptive GUI and the WinToNet protocol engine for intelligent delivery of Windows applications to mobile devices. ■

INFRAGISTICS

◀ continued from page 1

with 45 components, including a full array of ActiveX controls. UltraSuite contains UltraGrid, Sheridan's grid for OLE databases; and UltraToolBars, Sheridan's ActiveToolBars and ActiveThread Plus. The suite offers the tools for developing the presentation layer for Web applications. The kit will sell for \$995, but also is available as a yearly subscription for \$1495, which will include upgrades and releases, Guida said. An Enterprise Edition includes the

subscription service as well as upgrades and priority support for one year.

Infragistics will continue to support COM products from the two former companies, to be known as "Classic" products. Guida said the company will release components written in C# for the .NET environment later this year.

The merger is the second significant move in the component market in the past seven months. In June 2000, Apex Software Corp. and VideoSoft joined forces to become ComponentOne LLC, which claimed the move created the largest vendor for the Visual Studio market. ■

XML GUIDE

◀ continued from page 3

threats of inflexibility, incompleteness or an abandonment of the resulting "standard." Adding to this is a tragic legacy of XML's derivation from the document-oriented SGML: DTDs are not themselves specified in XML. DTDs are written in their own—not particularly difficult but not particularly trivial—language.

This has all sorts of rotten consequences: You have to use separate editing tools on DTDs, not everyone who understands XML understands DTD specifications, and worst of all, the DTD language is markedly insufficient for describing data constraints, data structures, extension and interoperability issues. Without going into detail, everyone agrees that DTDs are far from ideal and should be replaced with some sort of XML-based way to specify data constraints. Such is the purpose of XML Schema, a W3C Recommendation candidate.

There are some who say XML Schema is a cure that's worse than the DTD disease. The chief criticism is that XML Schema is too complex. This may be true for internal development, but the lofty goals of interoperability that

characterize an XML standard come at the price of complexity. A more serious criticism of XML Schema is that there are arguably superior alternatives, such as Schematron and RELAX. Schematron has been a crowd favorite but recently appears to be positioning itself as a complement to, not a replacement for, XML Schema. RELAX is endorsed by the Japanese Standard Association and is a Draft Technical Report in ISO, but barring disasters in the W3C working group, XML Schema is clearly the winner of this race.

THE POST-HTML WEB

The World Wide Web has done some pretty great things based on ill-formed HTML stored in text files. HTML isn't going away. We might make it a little more rigorous by embracing XHTML, as discussed before, but browsers are going to be displaying hypertext documents for a long time to come. But "stored in text files"? More and more Web sites have multiple sources of data—text files, databases, server-side programs, external feeds and so forth. One of the most successful uses of XML to date has been the separation of presentation issues from data-creation issues. ■

NEXT ISSUE: THE ROLE OF XSL

Shouldn't managers and developers speak the same language to define a project?



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HIGH POINT LOWS (A PLAY IN ONE ACT)

The scene: The fulfillment department of a furniture manufacturer in High Point, N.C. The company recently decided to move its business to the Internet on its own, using static Web pages hosted on a server, and is waiting to reap the rewards of reaching a broader market more quickly. The room is off the production floor, with bits of foam rubber and swatches of cloth collecting around the server and desktop machines. It is harshly bright; wafts of smoke can be seen swirling over the heads of two order clerks, who are sitting with their feet up on their desks and thumbing through automotive magazines. The year: 2010.

Bill: Hey, Mike! Check this out! We got an order from the Web site for 1,000 Danish modern sofas.

Mike: No, Bill, check *this* out (holds up a picture of a vintage 1992 Ford F-150 pickup in mint condition and whistles). That's cherry! Anyway, have you put the order through for processing yet?

Bill: Well, no, I haven't.

Mike: Get with it, partner! That order's huge!

Bill: Yeah, but Mike...we stopped manufacturing Danish modern sofas eight months ago. We can't fill this order.

Mike: You have got to be kidding me! How in the world did that happen?

Bill: After I got the order, I checked around, and it appears that the brochure we have up on the site isn't synched with the database. We changed the database eight months ago to remove Danish modern sofas, but somehow, the content guys didn't update the catalog on the site.

Remember a few years back when we went up to Noo Yawk for that e-business meetin' and that Forrester Research

guy...what was his name? Oh, yeah, David Truog...he was up there, telling us all that stuff about code and content management, and how it will become part of some future e-business on-network asset modeling? And about how we should determine what our assets are, so we could get a greater return on them by sharing them and making them accessible on the network? How we should have known that building a Web site is like building an application, only the cycle is faster? And how content management and code development will blend, to include work flow, versioning, modeling and assembly? And how a unified approach to modeling, managing and presenting our assets on the Web would be key to our business in the Internet economy?

Mike: Kinda. I sorta remember hookin' up with a couple of those city gals, but then it gets fuzzy.

Bill: Well, remember how we came back all excited and everything, but then the boss said he didn't want to spend the money on the software and the training?

Mike: Hell's bells! That's right! Listen, we've got to save this account. Have the sales guys get 'em on the phone and see if we can sell 'em something we do make.

(An hour passes. Mike snuffs out another Marlboro underfoot and continues pacing. He takes a long drink from a short bottle of Dr. Pepper, imagining it's a Scotch. He lights another smoke.)

Bill: Mike! It's done! Sales got them to take three-piece sectionals instead. And they got them to up the order to 2,000 units.

Mike: Really? That's tremendous! All right, let's get the ball rolling.

(Bill calls down to the manufacturing

floor to schedule production of the couches. Muffled sounds are heard, and Bill's voice rises with anxiousness.)

Bill: Mike, we've got a problem. Two problems, actually.

Mike: What? What?

Bill: Well, we can't get the couches into production for eight weeks. The shop is backed up.

Mike: That's not unusual. What's the problem?

Bill: We promised delivery in four weeks.

Mike: Ouch! Can we outsource the order to one of our partners and have them made outside?

Bill: If we had the Web services to know when our partner plants had uptime, we could have the order manufactured there. That Forrester guy said we could have built an e-business network interface to see our partners' business processes, which live in the network, and then decide which would work best for us. In the network, complex negotiations yield to rules engines. They either can or they can't. But at this stage of the game, we're already too late. We really could have used that network solution that was pitched, but the boss...

Mike: Yeah, I know, he wouldn't spend the money. Anyway, what's the second problem?

Bill: We don't have the fabric, and our supplier shut down for retooling.

Mike: Closed? For a whole month? Do they have any openings?

Bill: Get serious for a second. We could try to find another fabric supplier, but that'll take time, and if we look around, our supplier would be pretty upset. We've sunk a lot of money into his operation, and he's a good guy, so we wouldn't want him to just walk out on us. An e-business network, which that guy Truog explained as a resilient structure of interdependent players linked in real time over the Internet, would have allowed us to "hyperpartner" with a fabric vendor. That way, we could have interconnected via UDDI and XML to find a vendor with an oversupply of the fabric we need, and we could have gotten this one order done. All the market data is common property in the network. Then, when our first supplier saw this, perhaps he'd have to change the way he does business to keep us around...like not shutting down for an entire month!

Mike: Tell me in English, please. What are you saying?

Bill: Mike, I'm saying we'd have been better off if we had never seen this order!

Mike: I'll drink to that.

(Mike removes two tumblers and a bottle of Dr. Pepper from his bottom desk drawer, pours out two drinks and hands one to Bill. They light cigarettes and knock back the beverage. The lights in the shop go out, perhaps for the final time.)

Curtain. ■

David Rubinstein is executive editor of SD Times.

MONEY WATCH



DAVID RUBINSTEIN

BUSINESS BRIEFS

Due to what it called improper accounting practices, **Unify Corp.** late last month reported revised financial results for its last fiscal year that showed a greater loss and lower revenues than originally reported. For fiscal year (FY) 2000, revised total revenues decreased 34 percent to \$20.4 million, the company reported, compared with revenues of \$30.8 million for fiscal 1999. The revised net loss for FY 2000 was \$7.1 million, compared with \$4.5 million a year earlier. Unify lost 39 cents per share, as opposed to earnings of 24 cents per share from a year ago. The company originally reported FY 2000 revenues of \$39.5 million, net income of \$15.3 million and earnings per share of 79 cents...

Red Hat Inc. reported FY 2001 third-quarter revenues of \$22.4 million, an increase of 112 percent over a year ago and an increase of 21 percent over the second quarter. The company reported an adjusted net loss of \$900,000, or 1 cent per share, compared with a loss of \$5.4 million, or 4 cents per share, from the third quarter last year. Red Hat is a distributor of the Linux operating system...

Microsoft Corp. will acquire **Great Plains Software Inc.**, a supplier of midmarket business applications, in an all-stock transaction valued at \$1.1 billion, the companies said. Great Plains will become the Great Plains Division of Microsoft and will develop, market and support business management applications for the .NET Framework...

Evoke Software Corp. has closed a \$25 million round of mezzanine funding, raising the total of venture financing raised to \$50 million. Evoke provides data profiling and analysis software. ■



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www.embedded.com/exec

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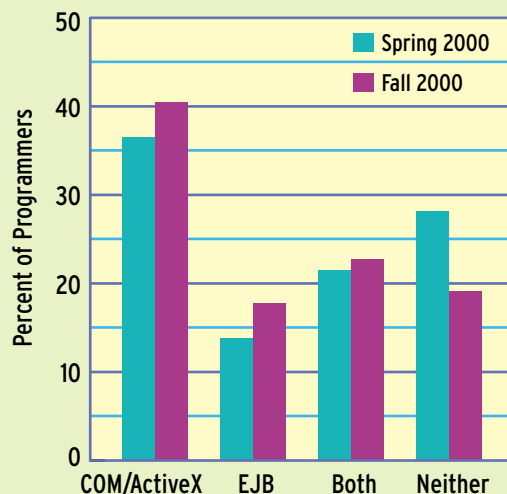
Conference plus two tutorials, \$1,945; conference plus one tutorial, \$1,645; conference only, \$1,345; tutorials only, \$1,240.

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Which Component Development Model Are Developers Likely to Use This Year?

EVANS DATA WATCH



The two major competing component object models are Microsoft's COM (Component Object Model) and Sun's EJB (Enterprise JavaBeans).

Results in the North American Survey conducted in the spring and fall of 2000 show that COM has maintained its lead, but also that EJB has gained some ground. The number of developers who expected to use "neither" has decreased almost 10 data points.

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